Unit Cost of Creating a Job in Central Government and Allied Undertakings: Its Employment Multiplier Effects and Implications

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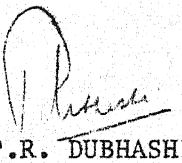
F O R E W O R D

One of the major problems which most of the developing countries seem to have been facing at present is the increasing cost of city infrastructure and services associated with increasing public employment. The unit cost of employment may be expected to vary with the population size of each town and city, the rate of investment, land-use and density pattern and varying norms and standards of various services.

Taking note of the fact that these are important issues in a developing country like India, the Town & Country Planning Organisation, Government of India, Ministry of Works & Housing sponsored an eighteen months research project on the unit cost of creating a job in Central Government and public undertakings. The Project came into operation in the mid of March 1982 and was entrusted to Shri R.K. Wishwakarma, a faculty member of this Institute for his interest in this study.

At the instance of TCPO, an Advisory Committee consisting of Shri Sayed S. Shafi, the then Chief Planner, TCPO and his successor Shri E.F.N. Rebeiro, Prof. Abhijit Datta, IIPA, Dr. T.K. Majumdar, Director (Research) ICSSR and Dr. V.N. Misra, Economist, Directorate of Economics & Statistics, Ministry of Agriculture, New Delhi was constituted under my Chairmanship for guiding the progress of the project. I am thankful for the cooperation that I received from the members in discharging my function as the Chairman of the Committee.

I am glad to note that this study is the first venture of its kind in estimating the unit cost of public employment which has been studied in the context of urban Delhi and a few other selected towns of the National Capital Region. I am also happy to note that Shri Wishwakarma with his expertise in the field of urban and regional planning, has brought out a commendable document with interesting findings dealing with above problems. I am sure these findings would prove to be very useful for the government in taking certain strategic locational decisions as well as for planning the economic base of the towns and cities, particularly in the National Capital Region. The document would also prove to be of considerable value to the academicians and scholars who are interested in conducting further research on this subject.



(P.R. DUBHASHI)
DIRECTOR, IIPA

October 7, 1983.

P R E F A C E

To understand the relation of price to economic efficiency in the theory of resource allocation, the analysis of the cost of factor supply and production cost becomes necessary. In estimating the cost, however, the meaningful question relates to the factors which determine the cost itself. For the student of economics, the term 'costs' can mean many different things. The opportunity cost of using resource is the 'explicit and implicit costs' of production paid as wages (salaries), rent, interest, and profits. Also, there are other costs like 'social costs', 'short run and long run costs', 'fixed and variable costs', 'total and average costs' and 'marginal' or 'additional costs'. But in estimating the unit cost of creating a job in central government and its allied public undertakings, it is the total and marginal cost of an additional employment, measured in terms of (i) direct cost and (ii) indirect cost which forms the focal point of this study.

I owe a debt of gratitude to Shri P.R. Dubhashi, Director, IIPA and the Chairman, Advisory Committee for encouraging what aptitude I had for research and also for his interest in this particular study, which helped me a lot in shaping the things in proper perspective. My grateful thanks are also due to other members of the Committee, namely, Shri Sayeed S. Shafi, Shri E.F.N. Rebeiro, Prof. Abhijit Datta, Dr. T.K. Majumdar and Dr. V.N. Misra.

My gratitudes are also due to Shri T.N. Chaturvedi, Secretary to the Government of India, Ministry of Home Affairs, for motivating me towards this end and also for facilitating the issue of Government Order (by the Ministry of Works & Housing) to all Ministries and their attached and subordinate offices including public undertakings for the supply of requisite information in connection with the study.

Although it is not possile to mention the names of various authorities of the Ministry of Works & Housing and that of the Town and Country Planning Organisation, who took initiative in sponsoring this study and helped in many ways, particular mention may be made of Shri P.S.A. Sundaram, the then Director (Urban Development), Ministry of Works and Housing. My grateful thanks are also due to him and to Shri V.V. Subrahmaniam and Shri P.K.S. Nair - officers of the T.C.P.O.

In the completion of the study, the support provided by a team of Research Officers - particularly Shri H.B. Pandey and Ajay Prakash with dedication and good qualities of head and heart deserve all appreciation and my sincere thanks. My thanks are also due to Dr. R.C.S Taragi for providing cartographic assistance in the preparation of various graphs and charts included in the study and to Shri Narendra Khare, who has been a helping hand throughout during the course of the Project.

During the field survey, data collection and compilation, a team of other Research Officers and Research Assistants consisting of Shri Prakash Chandra, Mrs. Nilima Verma, Miss Kushal Sharma, Miss Renu Nigam, Shri Manoj Kumar Sharma, and Miss Vijay Lakshami Bhagwani extended their cooperation. Although it is very difficult to mention the contribution of each one individually, they have done their best and made significant contributions. My thanks are also due to them and to Shri Ved Prakash for data analysis and computer programming.

I am also thankful to many concerned authorities and officials of the various Ministries of the Government of India and their attached and subordinate offices, public undertakings and various other establishments of insurance and banking institutions in Delhi, Ghaziabad, Faridabad - Ballabhgarh and Gurgaon and many others for furnishing the useful information for the completion of the study.

I shall be failing in my duty, if I do not record a word of appreciation to Shri Brij Bhushan, Registrar, IIPA for extending all possible help and cooperation from time to time. I owe a debt of gratitude to him also.

The cooperation received from the Corporate Studies Group of Institute in the production of this document on 'Word Processor' has been of significant value, and to this, I am sincerely thankful to Prof. S.K. Goyal, Shri B.M. Gupta, Shri K.V.K. Ranganathan and the officials Miss Vinod Sharma and Shri G.K. Arora.

Last, but not the least, Mrs. Vimla Soni deserves all appreciation for taking personal interest in shouldering a heavy burden of the Project workload and provided secretarial assistance including typing of the manuscript and final draft of the report. Her tireless attention has been instrumental to this effort. Shri Vijay Kumar Sharma also assisted in making a fair copy of the final draft. The services rendered by Shri Rakesh Chandra Pandey to the officers and project staff with all sincerity deserve special mention. I wish to record my appreciation and sincere thanks to all of them.

September 16, 1983

R.K. WISHWAKARMA
Project Director

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CHAPTER - 1

INTRODUCTION

The Problem

Urban settlements, all over the world, are characterised by a set of activities both economic and non-economic which account for the concentration of people in them. These activities are basically urban in nature and include those arising from trade and commerce, manufacturing, business, insurance and finance, transportation and communication, and a host of tertiary activities including community, social, administrative and personal services. All these activities combined together give the spatial configuration to the city and an inpulse of its increasing size. Although economic factors may favour the increasing size of an urban area, its absolute size, from an economic viewpoint, may be a brake on its growth. The living and operating cost in urban areas, beyond a certain size, increases because of more pressing demand for facilities, especially, public transport, roads, increasing journey time and length associated with the larger built-up area, and the increasing costs of public services due, perhaps to managerial diseconomies.[1]

Besides absolute size, "the problems of economic nature also arise from interaction between economic and non-economic factors. With urban growth bringing an expansion in the built-up area, the individual urban area may become politically fragmented, since local government

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1. Goodall, B., The Economics of Urban Areas, Pergamon Press, Oxford, 1972, p.46.

boundaries are slow to adjust and this may result in economic fragmentation in the supply of public services often at the expense of internal scale economies, and delay in improvements to public services".[2] This has a bearing on the nature of limits within which economic forces have to work and which may increase the economic costs of managing these services in everyday life.

Public employment have had and will continue to have an important effect on urban economy not only as a large force of urban labour force, but its employment will have an important effect on the fiscal resource capability of public bodies and urban governments. Public employment has also a relatively unique effect on the quality and level of services delivered, both directly through their productivity on the job and indirectly through their increasing cost of establishment.

Theoretical Developments

Basing these argument on the theoretical wisdom gained and known as Wagner's Law (1977)[3] the public sector employment has grown and will continue to grow in an urban industrial society shifting its demand from private to public goods. Recent evidence to this backdrop suggests that: (i) the demand for local public employees is relatively inelastic (Ehrenberg, 1973),[4] (ii) that unit costs are rising in the public sector (Bradford et el 1969),[5] and (iii) that those costs could

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2. Ibid, pp. 46-47.

3. Wagner, A, Finanziwissenschaft, Part-I, Leipzig: C.F. Winter.

4. Ehrenberg, R., "The Demand for State and Local Government Employees" American Economic Revieew, 63 pp. 366-79.

5. Bradford, D.F., R.A. Malt, and W.E. Oates, The Rising Cost of Local Public Services: Some Evidences and Reflections, National Tax Journal, June 1969.

theoretically rise without limit (Baumol, 1967).[6] If unit costs continue to rise because of increasing wages of public employees as suggested in (ii) and rise without limit as suggested by (iii), the fact that the demand for local public employees has been found to be inelastic implies that the local government expenditures will spiral apparently without control. The Wagner's Law is suggestive of a demand formulation of the growing public sector hypothesis. As incomes grow, demand shifts towards public goods because the demand for public services is relatively income inelastic. If public sector output grows proportional to public employment, the Wagner's model implies growing public employment, at least during periods of economic growth.

Public Employment and Paradox of Zero Productivity

Contrary to this demand side approach, Baumol (1967) employed a productivity or supply side approach to explain growth in public employment. In his model of unbalanced growth, Baumol assumes that an urban economy could be divided in two broad sectors, e.g. (i) a progressive sector characterised by increasing productivity; and (ii) a non-progressive sector caracterised by constant (or decreasing), productivity. Interpreting government as a non-productive sector, Baumol's proposition (i) implies that this unbalanced relationship between rates of productivity increase for the two sectors insures that, in real terms, the relative cost of public to private goods and services will rise overtime (without limit).[7] If we make the further assumption that the demand for public goods is price inelastic, Baumol's

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6. Baumol, W.J., Macroeconomics of Unbalanced Growth: The Anatomy of the Urban Crisis, American Economic Review, June 1967, pp. 415-426.

7. Ibid.

proposition (ii) implies that the public sector will require ever increasing amounts of employees to maintain its production, displacing employment in the private sector. Another strand of thought (Borcherding, 1977)[8] based on the conclusive proofs suggests that the growth of government (or public employment) has been 40 to 50 percent faster than would be predicted just on the basis of changes in relative prices, incomes, population, and indices of interdependence. It is also likely that the development of bureaucracy or monopsony power of the public employees enter into picture with significant force in increasing the government spending and its relative cost due to lack of effective competition in the government (or pubic sector). In addition to this, the difficulty in defining output, and the absence of cost-reducing motivation in the Government sector - have allowed cost increasing institutions to be imbedded in the bureaucratic structure.[9]

The growth of government and employment in the public sector has "a momentum of all its own, quite independent of general growth, in the national economy. Economists have devoted much attenion to isolating the sources of economic growth but, surprisingly, they have paid almost no attention to the problem of determining why government's share in the national economy continues to increase."[10] To substantiate the argument, political expansion has awarded developmental advantages to the capital cities of the world and Delhi is not an exception. during a

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8. Borcherding, Thomas E., The Sources of Growth of Public Expenditures in the United States, 1902-1970 in Budgets and Bureaucrats: The Sources of Government Growth (ed.) Borcherding, Duke University Press, 1977, p.64.

9. Buchnan, J.M., Why Does Government Grow? in Budgets and Bureaucrats (ed.) Borcherding, p.16.

10. Ibid, p.3.

period of 20 years between 1961 to 1981, Delhi experienced a phenomenal increase in public employment. The Central government employment increased by 165 percent, state government (Delhi Administration) by 117 percent, local governments by 235 percent and that of public sector undertakings by 1721 percent. Taking all these sub-sectors combined, the overall increase in public sector employment during 1961-81, was 233 percent. The proportion of public sector employment to total workers in urban Delhi increased from 21.45 percent in 1961 to 28.76 percent in 1981. Of every three and a half workers, one is in the public sector.

Status of Capital City

The status of Delhi as a capital city and its growth from 2.37 lakhs of population in 1911 to 57.60 lakhs in 1981 does not seem to be a spurious consequence of its region, industrial mix or state population, all the three major factors alone in the national population shifts. Rather, being the seat of administration, the capital has grown disproportionately because the decision makers of the state have control over many of the traditional growth inducing resources including construction of many gigantic Ministerial Bhavans, state government houses, embassies, large scale business houses and mass housing projects, which required capital intensive infrastructure to support large transportation and communicaion networks. As a consequence, the capital city has had more employees in the public utilities and environmental services (highways, transportation, railways, airways, electricity and power generation, sanitation, natural resources, parks and recreation), community welfare and personal services (construction of public houses, education, health, police, fire services) and busines, finance, insurance, real estate and banking services. The first two are

obvious areas of governmental effect, while the last one is the consequence of increased growth and investment pattern.

Nature and Scope of the Study

The growth of infrastructure and the pattern of investment influences the growth of capital expenditure more conducive to the location of office establishments. During a period of 1970-75 alone, a sum of Rs.2844 million was spent as capital expenditure on infrastructure of different kinds, such as, land and housing, transport, electricity, water supply and drainage, roads and bridges, telephones, slum improvements, shops and market establishment, parks and playgrounds, public safety and conveniences, buildings etc. The overall capital expenditure in the corresponding year recorded a linear growth of 7.51 percent against the backdrop of 4.82 percent growth in poulation and 30.66 percent in income.[11] While the influence of business, finance and development companies on office location is elusive, the supply of labour is axiomatic[12] putting further pressure on the increase of population and thereby more demand for services and infrastructure. Again, it becomes more significant over time, because of increasing trends towards specialisation in the occupational skills required for the office labour force. It remains an open question whether increasing specialisation of labour reduces the locational choices available to office organisations. Public undertakings, companies and business

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11. Wishwakarma, R.K., Land and Property Values: An Analysis of Environmental Impact, Centre for Urban Studies, IIPA 1980, Chapter-2, Environmental Structure and Growth of capital Expenditure, pp.12-19.

12. Daniels, P.W., Perspective on Office Location, Research in Spatial Patterns of Office Growth and Location (ed.) Daniels P.W. John Wiley & Sons, 1979, p.16.

period uses requiring a wide range of skilled personnel, business analysis, computer management scientists including those of wholesale and retail commodity traders and dealers, all have been tending to locate in the capital city, where they could easily locate the personnel required.

The growth of economic activities and their establishments thus also influences the demand for urban space for the location of office establishments, too. The office functions tend to be located or generally attached to the production of goods and services, activity itself. The office administration in government and the public sector undertakings usually leads to a disproportionate distribution of office work at or near those locations, where the economic activity is relatively more. As a consequence, there is a greater demand for more improved or extended office accommodation and the consequential related demand for services and other infrastructure, including the personnel manning these services.

Within the precincts of the theoretical premises discussed in the beginning, the job opportunities once created in the public sector go on multiplying due to concomitant growth of both production-oriented tertiary sector (POT) as well as consumer-oriented tertiary sector (COT)[13] and a host of manufacturing activities to cater to the needs of growing population. With the growth in the demand for public goods, the actual output of the public goods should grow at the rate of population

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13. Production-oriented tertiary (POT) activities include wholesalers, repair services, fnance and business services, transport and communication services, institutional services. Consumer - oriented tertiary (COT) activities are retailers services, commission agents and brokers and community welfare and personal services.

growth along the steady state equilibrium growth path and consuming a constant share of gross national product. Evidently, this increases the total cost of public sector over time whether the employment remains stationary or shows an increasing trend. To substantiate, the results of this study[14] indicate that in the office establishments of both central government and public sector undertakings in Delhi, where there has been no increase in employment during the period 1979-80 to 1980-81, the total gross expenditure has increased by 9.84 percent in central government and by 23.88 percent in public sector undertakings. Adjusting these growth rates for the rate of inflation @ 17 percent for the corresponding period, the net increase in total expenditure was 8.16 percent in central government and 19.82 percent in public sector undertakings. But in the office establishments, which have recorded an increase in employment, the corresponding growth of total gross-expenditure has been 13.10 percent in central government and 20.86 percent in public sector undertakings. Discounting again for the rate of inflation, the growth of net expenditure was 10.87 percent and 17.32 percent, respectively. These increases both in the gross and net expenditures have bearing on both the marginal cost of (i) creating an additional job in public sector, as well as (ii) the cost of office establishment. The study is, therefore, directed to estimate the unit cost of creating a job in central government and allied public sector undertakings in Delhi vis-a-vis other selected towns of the National Capital Region.

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14. Based on the survey results of this study Unit Cost of Creating a Job in Central Government and Allied Public Sector Undertakings: Its Employment Multiplier Effects and Implications.

Objectives

1. To study the relationship between the growth of population and total employment;

2. To study the relationship between total employment and the employment in central government and allied public undertakings;[15]

3. To measure the impact of population growth on urban space requirement for the physical growth of the city; and

4. To estimate the unit cost of creating a job in central government and allied public undertakings in Delhi vis-a-vis other selected towns of the National Capital Region.

Study Area

The area of study is limited to the metropolis of Delhi and the other three towns of Faridabad - Ballabgarh Complex, Gurgaon and Ghaziabad in the National Capital Region.

Significance of the Study

The study as it aims at to find out the unit cost of creating a job in public sector on an area basis would be suggestive of which are the most efficient and economically effective urban centres within the area of study for the location of office establishments. Indirectly, the study is a pointer to the areas of comparative cost advantage for office locations. Considering the existing pressure of population and the demand for urban land and housing, and a host of related services and infrastructure, the capital city's capacity for an optimal growth than in the past has become a doubtful proposition. Although there had been a good deal of debate, in past, on the optimal size of the city, there

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15. Public sector employment in this study includes employment in central government and other allied public undertakings includings nationalised banks in the study area. For the purpose of this study, it does not include the employees of State Administration and other local bodies in the selected towns.

seems to have been no general consensus on this issue. But the city may be of any size or kind should have a policy, where the primary objective should be to supplement local incomes. The infusion of huge local or outside capital would neither suffice to provide jobs for every resident population nor meet the cost of needed basic services and infrastructure, unless the city managers and decision makers help reduce the cost of such services and infrastructure. But cost reduction seems to be no agreeable solution in the light of zero - productivity in the public sector and the increasing cost of maintenance and services administration.

The relationship between the growth of employment and economic activity is an important aspect of the study. It also throws some light on the population growth and urban space requirements, over time, to sustain the city's growth of population. The results of this study might serve as a guide to the policy makers, city planners and the urban real estate managers.

Chapter - 2

METHODOLOGY AND RESEACH DESIGN

In order to study the relationship between the population growth and economic activity, the urban growth and urban space requirements, the public sector employment to the total employment, the data for public sector employment has been taken from employment market information unit and for the population and workforce from the census records. To study the economic structure of towns and cities in relation to the growth of population, the census data for the years 1961, 1971 and 1981 have been taken for all the selected towns. Since the census data pertaining to 1981 census industrial categories is not comparable to 1971 data, the same has been estimated. The share of central government and its allied undertakings employment in the total public sector employment was (worked from the data) collected from the Employment Market Information Unit Pusa and the Regional Employment Exchanges.

Identifying the Universe

To undertake the study of this kind, the knowledge of the universe i.e. the total number of office establishments in central government and allied public undertakings was essential and, therefore, efforts were made to prepare a frame for the study by completely listing the establishments and employment from the sources referred to above (Table-2.1). Since neither the Employment Market Information Unit, Pusa, New Delhi nor the Divisional/Regional Employment Exchanges located at Faridabad, Gurgaon and Ghaziabad could provide the ready-made

information, the same was drawn from the establishment index cards arranged as per industrial classification code from the respective centres. This classification code contained the data relating to the name of establishment, locational address and the total employment for the period ending March 31st of each financial year. As the study concerns itself with the jobs created during 1980-81, the relevant data relating to the number of jobs created in Delhi, Ballabhgarh - Faridabad Complex, Gurgaon and Ghaziabad was collected from both the existing establishments as well as the newly created establishments set-up during the reference period. But to know the quantum and pattern of growth in jobs created, the information regarding establishments and their employment was collected for two consecutive years i.e. 1979-80 and 1980-81. The listing of the central government establishments and public sector undertakings was done separately. The establishments under public undertakings included, besides central government undertakings, the nationalised banks and insurance establishments, too (Table-2.1). The distribution and change in employment in central government establishments and public sector undertakings covered in the study during 1980-81 is given in the Table-2.2.

Establishments

The entire information pertaining to office establishments and their employment was classified in two categories viz. (i) central government offices which included the main ministries, attached and subordinate offices, and (ii) the allied public sector undertakings including nationalised banks and insurance agencies. Of the total 1,272 office establishments located in the study area, 1,140 were located in

Delhi, 75 in Ballabhgarh - Faridabad, 25 in Gurgaon and 32 in Ghaziabad (Table - 2.3). Thus in the study, Delhi alone shares about 90 percent of the total establishments, while the rest is shared by Ghaziabad and Gurgaon 2 percent each and Faridabad - Ballabhgarh 6 percent.

The response of the establishments under public sector undertakings in furnishing the requisite information on the Enumeration Slip (Annexure - 1) has not been very encouraging. Even a good number of establishments which responded, did not furnish the complete information. Out of 792 public undertakings, 306 responded and only 86 establishments (or, 10.86%) could give the complete information. Whereas, in Central government out of 490 establishments, 350 responded and only 173 establishments (35.30%) could provide the complete information (Table-2.3).

The Sampling Unit

It is this universe of 259 establishments which provided the complete information covered in the study. The basic unit of data collection for the study is the individual employee of the central government establishment as well as of public sector undertakings. For estimating the unit cost of creating a job in these establishments, the expenditure on salary and on office establishment and the provision of services and infrastructure at the household level provided the basis for estimating unit cost. Institutional households, such as hostels with common messing, lodges and other places, where the government does not provide services and infrastructure at the household level, have been excluded from the purview of the study, though such institutional employees formed a very negligible proportion to the total universe of employees.

Sampling Universe

The total employment universe consists of 11, 256 jobs created during 1980-81, the reference period (Table-2.1). Of this total increase of 11,256, the net increase in employment was of the order of 4,113 (or 36.36 percent) which formed the basis of sampling universe (Table-2.2). However, there were certain establishments both in the central government as well as in public undertakings which have experienced decreases in their employment strength to the extent of 542 employees either by way of retirement, leaving jobs or casualities, etc. But for the purposes of analysis and unit cost estimation, only those establishments were considered which had experienced increases in the total employment during 1980-81. The number of such establishments was 205, accounting for a gross increase of 4,635 jobs out of a total increase of 11,256. Since the main target of sampling universe is the number of jobs created during the reference period, the sampling universe covered 259 (or 20 percent) of the total establishments and about 41 percent of the total jobs created.

Having identified the sampling universe, it was arranged into four groups 'A', 'B', 'C' and 'D', as per classification made by the Government[1] in order to know the increase in employment in each strata. On the face of it, depended the norms, the pay structure, and the services and infrastructure provided including space requirements for

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1. The Govt. of India classification of employees is based on income criterion. Group-A employees are those whose basic salary scale is Rs.700-1300 and above. Group-B employees are those whose basic salary scale is Rs.650-1200 and below between Rs.550-900 of both gazetted and non-gazetted staff. Group-C employees are those whose basic salary scale is Rs.425-700 and below between Rs.260-350. Group-D employees are those whose basic salary scale is Rs.210-270 and below between Rs.196-232.

both office and living. Hence to give proper representation and weightage to all the four groups of employees, the sample was drawn from the gross increases in employment in each category during 1980-81.

Sampling design

In view of the constraints of time and resources to cover the entire sampling universe of 4,635, it was decided to select the sample employees drawn purposively on the basis of straitified random sampling design. The determination of the sample size is one of the most important issue in any survey. In a stratified sampling design, the overall sample size is the number of sample employees selected from each group which signifies the accuracy of estimates. The sample size is primarily conditioned by the variability of the characteristics studied. In this study, it is the total expenditure for creating an additional job which determines the unit cost and this could be regarded as the key variable.

As it is evident from the Table - 2.4, of the 4,635 sampling universe covered for the study, the share of Delhi was 92.27 percent (4,227) and those of other selected towns could share a very nominal proportion i.e. Ballabhgarh - Faridabad Complex (4.25 percent), Gurgaon (0.65 percent) and Ghaziabad (2.83 percent). Since the increase in employment in these selected towns was very nominal, the sample size considered for Delhi, if applied to other towns could have not given the consistent results. Hence in order to overcome this problem and still to maintain the required precision in estimates, the size of sample was kept uniform in Delhi at 12 percent of the sampling universe and 20 percent in the case of other selected towns.

Sample size

On the basis of sample size decided above, a total sample of 567 employees was drawn as the unit of study from all the selected towns and cities. Referring to Table-2.5, in Delhi alone, 489 employees comprising of Group-A (75), Group-B (26), Group-C (292), and Group-D (96) were selected for the study. In Ballabhgarh-Faridabad Complex, a total of 43 sample employees consisting of Group-A (3), Group-B (3), Group C-C (30) and Group-D (7). In Gurgaon a sample size of only 7 was obtained with a single employee from each group 'A' and 'D', Group-B (2) and Group-C (3). In case of Ghaziabad which gave a sample of 28 employees, group-A and B contributed 4 each, while group-C and D, 15 and 5 respectively.

The total sample size of 567, therefore, consisted of 83 employees from group-A, 35 from group-B, 340 from group-C, and 109 from group-D. Of the 83 sampled employees in group-A, 26 belonged to the central government, while 57 to the allied public sector undertakings. Group-B had 22 employees from central government and 13 from allied public undertakings. In a total of 340 in group-C, the share of central government was 178 and that of allied public undertakings 162. In group-D, 34 belonged to central government, while 75 to allied public undertakings.

Unit Cost

In order to estimate the unit cost of creating an additional job, the information on two components was collected viz:

(i) direct cost[2] : the cost on salaries and wages including allowances, etc.

(ii) indirect cost : (a) the establishment cost and (b) the cost of services and infra-structure provided at the household/neighbourhood level.

The cost on salary and office establishments including additional expenditure was collected from all the enumerated central government establishments and public undertakings through the Enumeration slips for calculating the total cost. While calculating the per capita/unit cost, the factor of inflationary rise[3] in cost due to increase in D.A. and other related operational expenses were discounted. The sum total of both (i) direct cost and (ii) indirect cost divided by the number of jobs created thus gives the unit cost of creating an additional job.

Parameters of Indirect-cost

The parameters of indirect cost include (a) the cost of office establishment including rent and travelling allowances and other operating expenses and (b) the cost of services and infrastructure being provided at the household/neighbourhood level, such as, housing, educational, facilities, transport, health services, water supply, sewerage, drainage electricity/power and recreational facilities. The norms and standards of providing these services are based on Central Public Works Department and Delhi Master Plan in case of Delhi, Haryana

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2. Direct cost consists of direct labour which is that portion of wages and salaries which can be identified with a specific product. The indirect cost is all fixed costs, Cf. McGraw Hill Dictionary of Modern Economics, Mc Graw Hill Book Company, New York, p. 165, and p.285.

3. The rate of inflation has been worked out on the basis of index number of prices for the period 1979-80 and 1980-81, taking the base of 1971. The price index for the year 1980-81 was 271 against 232 for 1979-80. This gave the rate of inflation @ 17 percent between 1979-80 and 1980-81. Source: Govt. of India, Economic Survey, 1982-83.

Urban Development Authority and Housing Board in the case of Faridabad - Ballabhgarh and Gurgaon and Ghaziabad Development Authority, in the case of Ghaziabad. The information on per capita/unit cost of these services was collected from secondary sources[4] in order to know the dimension of cost involved in providing these services and infrastructure in the cities and towns of the study area.

The methods of calculating the cost of selected parameters of services and infrastructure for this study are given below:

Housing	The per unit cost of housing has been worked out by taking the civil cost per square metre multiplied by the total plinth area of the each type of the housing unit. This also includes installation of electricity, water supply and sanitary fittings inside the house. This per unit cost has been taken as the norm of per capita cost of housing.
Road	The total cost of laying down per sq.km. road in a particular area divided by the total population (planned) living in that area gives the per capita cost of road construction.
Public Transport	The total annual expenditure consisting of expenditure on capital assets and its operating expenses divided by the total number of passengers carried by buses during the year provides the per capita transport cost.

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4. The information regarding indirect cost on services and infrastructure has been taken from various sources and compiled accordingly. For housing, in case of Central Government employees, the Directorate of Estate and Central Public Works Department, Ministry of Works & Housing provided the information. Likewise, for other services, such as, health, Directorate of Health and Family Welfare; for power and electricity, Delhi Electric Supply Undertakings; for water supply and drainage, Water Supply and Sewerage Disposal Undertakings; for transport, Delhi Transport Corporation, for education, Directorate of Education, Delhi Administration, and for group housing for the employees working in public undertakings, Delhi Development Authority. The data for other towns of the study i.e. (i) in Ghaziabad was provided by the Ghaziabad Development Autority, U.P. Jal Nigam, U.P. Electricity Board and Ghaziabad Municipality, and (ii) in Faridabad - Ballabhgarh Complex and Gurgaon, was provided by Haryana Urban Development Authority, Housing Board, Departments of Transport and Education.

Electricity/power	The total annual cost has been derived from capital investment on fixed assets and operational expenses divided by the total number of beneficiaries gives the per capita cost of power and electricity.
Health	The per capita cost of central government health services has been worked out on the basis of total annual expenditure both on establishment and equipments and medicines (including the capital expenditures) divided by the total number of beneficiaries.
Education	The per capita cost on education has been worked out on the basis of total plan and non-plan expenditure divided by the number of pupils enrolled during the year.
Recreational Facilities	The total expenditure on the development of parks & playgrounds divided by the resident population gives the per capita cost.

Household Survey

In order to estimate the proportion of household income being spent on services and infrastructure provided at the household level, a "household survey" was conducted for the sample employees in the study area. The survey was based on the structured household schedule designed for the purpose (Annexure-II).

Analytical Methods

The analysis of data has been mainly based on simple means, frequency and percentage distribution in case of household survey. The estimation of the proportion of household income being spent on the services and infrastructure and its relation to the income of the household has been measured by regressing the proportion of this expenditure to household income. The same has been obtained between the educational level and income. Likewise, the relationship between the growth of population and total employment, public and private sector employment to total employment and that of economic activity to urban

space requirement, has also been attempted through regression analysis. The regression analysis, the linear type ($Y = a + bX$) has been attempted to know how the employment in each sector of activity as well as the sectors of employment viz. central government, public undertakings, state administration, local bodies, all governments, and private sector affected the total employment. Further, linear regression analysis has been applied to study the trend and behaviour of these sectoral activities (taking employment as the proxy for these activities) in public sector, private sector and total employment.

To study the trend and cycle of employment (employment stability), a time series data by type of economic activity and sector of employment was taken into account. In order to determine the cyclical stability, the trend has been removed. This has been accomplished by regressing sectoral employment on a time trend variable. The residuals of employment based on a time trend variable, divided by the predicted level of employment, give the cyclical pattern of employment. This measure of cyclical volatility of employment has been regressed on total employment which has given the coefficient of elasticity of sectoral employment obtained by the following formula.[5]

$$[(E_i - \overline{E}_i)/\overline{E}_i]_t = a_t + b_t\,[(E_j - \overline{E}_j)/\overline{E}_j]_t$$

Further, to measure the extent of responsiveness of sectoral employment, public and private employment to total employment, the coefficient of elasticity has been obtained by applying the Cobb-Douglas function of the following form: $Y = a\,X^b$. In addition, the marginal

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5. Gross Kopf Shawna, Public Employment's Impact on the Future of Urban Economics in Urban Government Finance: Emerging Trends, Urban Affairs Annual Review (ed.) Roy Bahl Vol.20, 1981 p.50.

change in the total employment due to change in employment in different activities vis-a-vis the sectors of employment has been estimated by differentiating total employment with basic and sectoral employment. The coefficient of marginal employment has been obtained by multiplying $\overline{Y}/\overline{X}$ with the coefficient of elasticity.

The growth rate of employment in each sector and activity has been derived on the basis of compounding formula

$r = [(Fv/Pv)^{1/t} - 1] \times 100$ where,

r = the compund growth rate

Fv = the future value

Pv = the present value

t = t th period.

In order to measure the percentage variation in the dependent variable explained jointly by the independent variables, the R^2 has been used. A high value of R^2 indicates a good fit of a posited relation, and a low R^2 a poor fit. Since R^2 provides a standard measure of how good a specified relation fits the sample data, the measure can be used as the criterion for comparision of (1) the goodness of fit between any two alternative sets (but not necessarily mutually exclusive) of independent variables, and (2) the goodness of fit of two functional forms given the same set of independent variables. Thus R^2 is the non-decreasing function of the number of regressors. This coefficient of multiple determination corrected for the degrees of freedom denoted by $\overline{R}^2$ has been used to compare the strength of the additions of variables in a regression involving k + 1 independent variables.

$$\overline{R}^2 = 1 - (1 - R^2) \frac{n - 1}{n-k - 1}$$

R^2 is always positive but less than unity as $1 \geqslant R^2 \geqslant 0$. But this characteristic does not hold true for $\bar{R}^2$ and hence, it need not necessarily be always positive. $\bar{R}^2$ is positive only when the following condition is satisfied, i.e.,

when $R^2 \geqslant k / n-1$

But in case, if $R^2 < k / n-1$, $\bar{R}^2$ will become negative.

TABLE - 2.1

DISTRIBUTION OF ESTABLISHMENTS AND EMPLOYMENT IN THE SELECTED TOWNS AND CITIES DURING 1980 AND 1981.

S. No.	City/ Towns	Sector	Number of Establishment as on 31st March		Net Change in Establishment during	Total Employment as on 31st March		Net Change in Employment during
			1980	1981	1980-81	1980	1981	1980-81
1.	Delhi	Central Government	448	445	-3	2,49,683	2,49,270	- 413
		Public Undertakings	684	695	11	1,06,304	1,16,444	10,140
		Sub Total	1132	1140	8	3,55,987	3,65,714	9,727
2.	Ghaziabad	Central Government	8	8	-	674	752	78
		Public Undertakings	24	24	-	721	735	14
		Sub Total	32	32	-	1,395	1,487	92
3.	Faridabad Ballabhgarh Complex	Central Government	21	21	-	2,837	3,826	989
		Public Undertakings	53	54	1	2,008	2,136	128
		Sub Total	74	75	1	4,845	5,962	1,117
4.	Gurgaon	Central Government	6	6	-	1,007	779	-228
		Public Undertakings	17	19	2	614	1,162	548
		Sub Total	23	25	2	1,621	1,941	320
Total (1-4)		Central Government	483	480	-3	2,54,201	2,54,627	426
		Public Undertakings	778	792	14	1,09,647	1,20,477	10,830
		GRAND TOTAL	1,261	1,272	11	3,63,848	3,75,104	11,256

TABLE - 2.2

DISTRIBUTION AND INCREASE IN EMPLOYMENT IN CENTRAL GOVERNMENT ESTABLISHMENTS AND PUBLIC UNDERTAKINGS DURING 1980-81 COVERD IN THE STUDY.

S. No.	City/Town	Sector	Employment in Group A			Employment in Group B			Employment in Group C		
			1980	1981	Increase during 1980-81	1980	1981	Increase during 1980-81	1980	1981	Increase during 1980-81
1.	Delhi	Central Govt.	4087	4224	137	6330	6357	27	28600	29765	1165
		Pub. Undertakings	4454	4927	473	2047	2123	76	23450	24636	1186
		Sub Total	8541	9151	610	8377	8480	103	52050	54401	2351
2.	Ghaziabad	Central Govt.	38	46	8	85	100	15	450	491	41
		Pub. Undertakings	84	93	9	24	26	2	201	214	13
		Sub Total	122	139	17	109	126	17	651	705	54
3.	Faridabad-Ballabhgarh	Central Govt.	101	100	- 1	237	245	8	2474	2574	100
		Pub. Undertakings	127	135	8	120	123	3	461	499	28
		Sub Total	228	235	7	357	368	11	2935	3073	128
4.	Gurgaon	Central Govt.	3	3	-	5	9	4	66	66	-
		Pub. Undertakings	17	21	4	50	49	-1	117	133	16
		Sub Total	20	24	4	55	58	3	183	199	16
Total (1-4)		Central Govt.	4229	4373	144	6657	6711	54	31590	32896	1306
		Pub. Undertakings	4682	5176	494	2241	2321	80	24229	25482	1253
		GRAND TOTAL	8911	9549	638	8898	9032	134	55819	58378	2559

Contd...

TABLE 2.2 (Contd.)

DISTRIBUTION AND INCREASE IN EMPLOYMENT IN CENTRAL GOVERNMENT ESTABLISHMENTS AND PUBLIC UNDERTAKINGS DURING 1980-81 COVERED IN THE STUDY.

S. No.	City/Town	Sector	Employment in Group D			Total Employment		Net Increase during 1980-81
			1980	1981	Increase during 1980-81	1980	1981	
1.	Delhi	Central Govt.	9170	9238	68	48187	49584	1397
		Pub. Undertakings	12898	13576	678	42849	45262	2413
		Sub Total	22068	22814	746	91036	94846	3810
2.	Ghaziabad	Central Govt.	77	101	24	650	738	88
		Pub. Undertakings	69	67	-2	378	400	22
		Sub Total	146	168	22	1028	1138	110
3.	Faridabad-Ballabhgarh	Central Govt.	689	704	15	3501	3623	122
		Pub. Undertakings	125	118	-7	833	875	42
		Sub Total	814	822	8	4344	4498	164
4.	Gurgaon	Central Govt.	37	38	1	111	116	5
		Pub. Undertakings	49	54	5	233	257	24
		Sub Total	86	92	6	344	373	29
	Total (1-4)	Central Govt.	9973	10081	108	52449	54061	1612
		Pub. Undertakings	13141	13815	674	44293	46794	2501
		GRAND TOTAL	23114	23896	782	96742	100855	4113

Source:- Field Survey.

TABLE - 2.3

DISTRIBUTION OF CENTRAL GOVERNMENT ESTABLISHMENTS AND PUBLIC UNDERTAKINGS ENUMERATED AND COVERED IN THE STUDY

S. No.	City / Town	Sectors	Establishments		
			Listed	Responded	Covered
1.	Delhi	Central Government	455	315	144
		Public Undertakings	695	265	55
		Sub Total	1140	580	199
2.	Ghaziabad	Central Government	8	8	7
		Public Undertakings	24	14	12
		Sub Total	32	22	19
3.	Faridabad-Ballabhgarh	Central Government	21	21	18
		Public Undertakings	54	16	11
		Sub Total	75	37	29
4.	Gurgaon	Central Government	6	6	4
		Public Undertakings	19	11	8
		Sub Total	25	17	12
	Total (1-4)	Central Government	490	350	173
		Public Undertakings	792	306	86
		GRAND TOTAL	1272	656	259

Source: Field Survey.

TABLE - 2.4

DISTRIBUTION OF ADDITIONAL EMPLOYMENT INCREASE IN THE SAMPLED ESTABLISHMENTS DURING 1980-81.

S. No.	City/Town	Sector	Groupwise Net/Gross Increase in Employment during 1980-81								Increase in Total Employment during 1980-81	
			Group A		Group B		Group C		Group D			
			Net Increase	Gross Increase	Net Increase	Gross Increase	Net Increase	Gross Increase	Net Increase	Gross Increase	Net Increase	Gross Increase
1.	Delhi	Central Govt.	137	182	27	62	1165	1413	68	78	1397	1735
		Pub. Undertakings	473	483	76	88	1186	1296	678	685	2413	2542
		Sub Total	610	665	103	150	2351	2699	746	763	3810	4277
2.	Ghaziabad	Central Govt.	8	8	15	16	41	56	24	27	88	107
		Pub. Undertakings	9	10	2	2	13	14	-2	-2	22	24
		Sub Total	17	18	17	18	54	70	22	25	110	131
3.	Faridabad Ballabhgarh	Central Govt.	- 1	5	8	12	100	109	15	28	122	154
		Pub. Undertakings	8	9	3	4	38	28	-7	2	42	43
		Sub Total	7	14	11	16	138	137	8	30	164	197
4.	Gurgaon	Central Govt.	-	-	4	4	-	1	1	1	5	6
		Pub. Undertakings	4	4	-1	6	16	9	5	5	24	24
		Sub Total	4	4	3	10	16	10	6	6	29	30
	Total (1-4)	Central Govt.	144	195	54	94	1306	1579	108	134	1612	2002
		Pub. Undertakings	494	506	80	100	1253	1337	674	690	2501	2633
		GRAND TOTAL:-	638	701	134	194	2559	2916	782	824	4113	4635

Source: Field Survey.

TABLE - 2.5

ADDITIONAL EMPLOYMENT CREATED DURING THE REFERENCE PERIOD 1980-81 AND THE SIZE OF SAMPLE

S. No.	City/Town	Sector	Groupwise Additional Employment and the Sample Size								Total	
			Group A		Group B		Group C		Group D			
			Additional Employment	Sample	Additional Employment	Sample	Additional Employment	Sample	Additional Employment	Sample	Additional Employment	Sample
1.	Delhi	Central Govt.	182	23	162	16	1413	144	78	23	1735	206
		Pub. Undertakings	483	52	88	10	1286	148	685	73	2542	283
		Sub Total	665	75	150	26	2699	292	763	96	4277	489
2.	Ghaziabad	Central Govt.	8	2	16	3	56	12	27	5	107	22
		Pub. Undertakings	10	2	2	1	14	3	-2	-	24	6
		Sub Total	18	4	18	4	70	15	25	5	131	28
3.	Faridabad-Ballabhgarh	Central Govt.	5	1	12	2	109	22	28	6	154	31
		Pub. Undertakings	9	2	4	1	28	8	2	1	43	12
		Sub. Total	14	3	16	3	137	30	30	7	97	43
4.	Gurgaon	Central Govt.	-	-	4	1	1	-	1	-	6	1
		Pub. Undertakings	4	1	6	1	9	3	5	1	24	6
		Sub Total	4	1	10	2	10	3	6	1	30	7
	Total(1-4)	Central Govt.	195	26	94	22	1579	1798	134	34	2002	260
		Pub. Undertakings	506	57	100	13	1337	162	690	75	2633	307
		GRAND TOTAL:-	701	83	194	35	2916	340	824	109	4635	567

Chapter - 3

PUBLIC EMPLOYMENT IN SERVICE SECTOR

Employment is provided either by public sector (government and its allied undertakings) or by private sector. Public sector or government employment consists of (i) central government, (ii) public undertakings, (iii) state administration, and (iv) local bodies. Since the focus of the study is on central government employment and its allied undertakings, another sub-sector of all government employment consisting of category (ii)has been created in the name of public sector employment for the purpose of this study. Thus public sector employment has its four constituents and the total employment five, as stated below:

$$Et = f(Ep, Ep') \quad \ldots\ldots\ldots \quad (1.1)$$

$$\text{But} \quad Ep = f(Ec, Eu, Es, El) \quad \ldots\ldots\ldots \quad (1.2)$$

$$\text{Hence} \quad Et = f(Ec, Eu, Es, El, Ep') \quad \ldots\ldots\ldots \quad (1.3)$$

Where Et is the total employment,Ep and Ep' are employment in public and private sector, respectively. Ec, Eu, Es and El denote employment in central government, public undertakings, state administration, and local bodies, respectively.

Public Employment

Rapid expansion in the employment opportunities was created by public undertakings particularly during sixties. In order to check concentration of wealth and economic power in a few hands, the Government of India, following the principles of economic democracy started nationalising some sectors of the private economy in the name of public undertakings. As a consequence, the public sector witnessed an

overall increase in employment by 155 percent during sixties, 52 percent during fifties and 30 percent during seventies. Although employment level of central government has always been the highest, public undertakings attained the maximum rate of growth of 650 percent during 1961-71. The details of public employment i.e. employment in central government, public undertakings and also in state and local bodies, their growth rate of employment is given in the Table - 3.1.

Trends in Employment Growth

In Urban Delhi, the National capital of India, employment in all government has achieved commanding-heights in providing employment. An analysis of the growth trends (Table - 3.2) reveals that taking employment of 1971 as present value, the average annual growth rate of employment has shown tremendous growth rate of employment in public undertakings, starting from the very next year, which was 12.5 percent during 1971-72. The compound growth rate of employment in each year in public undertakings has varied between 6.29 percent and 8.56 percent during a time span of nine years i.e. 1972 to 1981. The growth rate of employment in central government has been declining since 1971, when it witnessed a high growth rate of 7.6 percent in employment in 1971-72 and 4.8 percent in 1972-73. In succeeding years, it has steadily been declining from 3.5 to 1.17 percent. Employment in Delhi state administration has been increasing till 1978, although not very appreciably, only between 1.9 to 3.2 percent. But it reached even below that level of employment which stood in 1971. There was a decline in the growth rate of -0.23 percent during 1978-79. After that it has again started increasing but insignificantly. Initially during the three years, employment in local bodies declined very significantly

TABLE - 3.1

GROWTH OF PUBLIC EMPLOYMENT IN URBAN DELHI 1951-1981

S. No.	Sector	Employment				Increase in Employment			
		1951	1961	1971	1981	1951-61	1961-71	1971-81	1961-81
1	2	3	4	5	6	7	8	9	10
1.	Central Government	87.559 (83.1)	94,440 (59.0)	2,12,448 (51.9)	2.49.270 (46.76)	6,881 (7.9)	1,18,008 (124.96)	36,822 (17.33)	1,34,850 (163.94)
2.	Public Undertakings	N.A.	6,397 (3.9)	47,895 (11.7)	1,16,444 (21.84)	6,397 (-)	41,496 (648.68)	68,551 (143.13)	1,10,047 (1720.3)
	Sub Total (1+2)	87,559 (83.1)	100,837 (62.9)	2,60,341 (63.9)	3,65,714 (68.60)	13,278 (15.16%)	1,59,504 (158.18)	105,373 (40.47)	2,64,877 (262.67)
3.	State Government	7,189 (5.8)	26,666 (16.7)	53,624 (13.1)	57,957 (10.87)	19,477 (270.9)	26,958 (101.1)	4,333 (8.1)	31,291 (117.3)
4.	Local Bodies	10,639 (10.1)	32,667 (20.4)	95,376 (23.3)	1,09,437 (20.53)	22,028 (207.53)	62,709 (192.0)	14,061 (14.7)	76,770 (235.0)
	Grand Total:-	1,05,387	1,60,170	4,09,341	5,33,108	54,783	2,49,171	1,23,767	3,72,938

Note: 1. The office establishments and their employment in Central Government and Public Undertakings have been included for the purposes of this study.
2. Figures within parentheses in column Nos. 3-6 indicate the percentage share of employment to the public employment.
3. Figures within parentheses in column Nos.7-10 indicate the percentage increase in employment during the specified period.

Source: Compiled from EMI Unit, Pusa, New Delhi.

TABLE - 3.2

AVERAGE ANNUAL GROWTH RATE OF EMPLOYMENT IN URBAN DELHI DURING 1971-81

Year	Central Government	Public Sector undertakings	State Administration	Local Bodies	Private Sector	Public Sector	All Govt.	Total
1	2	3	4	5	6	7	8	9
1971-72	7.58	12.50	1.88	- 8.88	- 1.89	8.61	3.90	2.28
1972-73	4.85	8.56	2.79	- 5.72	- 0.95	5.64	2.88	1.83
1973-74	3.51	7.20	1.85	- 3.85	- 0.42	4.30	2.30	1.56
1974-75	2.62	7.21	2.71	0.00	0.31	3.63	2.75	2.09
1975-76	2.09	6.29	3.18	1.29	- 0.25	3.03	2.68	1.89
1976-77	2.09	6.56	3.19	1.08	1.12	3.11	2.69	2.27
1977-78	1.36	6.84	2.73	0.00	1.30	3.11	2.42	2.12
1978-79	2.09	7.38	- 0.23	0.27	1.85	3.36	2.30	2.18
1979-80	1.90	7.35	0.41	0.36	1.46	3.24	2.32	2.08
1980-81	1.67	7.64	0.90	1.93	1.53	3.20	2.65	2.35

Note:-1. Derived from the compounding formula: $r = [(Fv/Pv)^{1/t}-1] \times 100$, where Fv is future value, Pv is present value, and t is the tth period.

2. All government refers to sum total of central government, public sector undertakings, state administration and local bodies.

3. Public sector refers to central government and public sector undertakings.

(from 9 to 4 percent). Immediately after that, again it started gaining status quo and during 1980-81, employment in local bodies increased by 2 percent from its 1971-72 level. Employment in the private sector in the first five years decreased between .25 percent to 1.9 percent but attained an employment trend in 1977 and since then started increasing very significantly (Fig. 3(a).

In view of the above analysis of growth trends in employment, only the public undertakings and, to some extent, central government also seems to have created the maximum employment opportunities which have shown even an increase of 143 percent in public undertakings and 17 percent in central government, during the decade 1971-81.

In urban Delhi, public sector employment possessed a lion's share of 73.7 percent in total employment. The rest of employment i.e. 26.3 percent is attributed to private sector (Table 3.3). It is also

TABLE - 3.3

AVERAGE ALL GOVERNMENTS AND TOTAL EMPLOYMENT DURING 1971-81.

S.No.	Sectors of Employment	Average Employment	Percent to total Emploment	Percent to All Govts.
1.	Central Government	2,35,545	37.3	50.6
2.	Public Undertakings	81,545	12.9	17.5
3.	Delhi State Administration	57,545	9.1	12.4
4.	Local Bodies	90,727	14.4	19.5
5.	Public Sector (1+2)	3,17,090	50.2	68.1
6.	All Governments (1+2+3+4)	4,65,362	73.7	100.0
7.	Private Sector	1,66,273	26.3	-
	Total Employment (6 + 7)	6,31,635	100.0	-

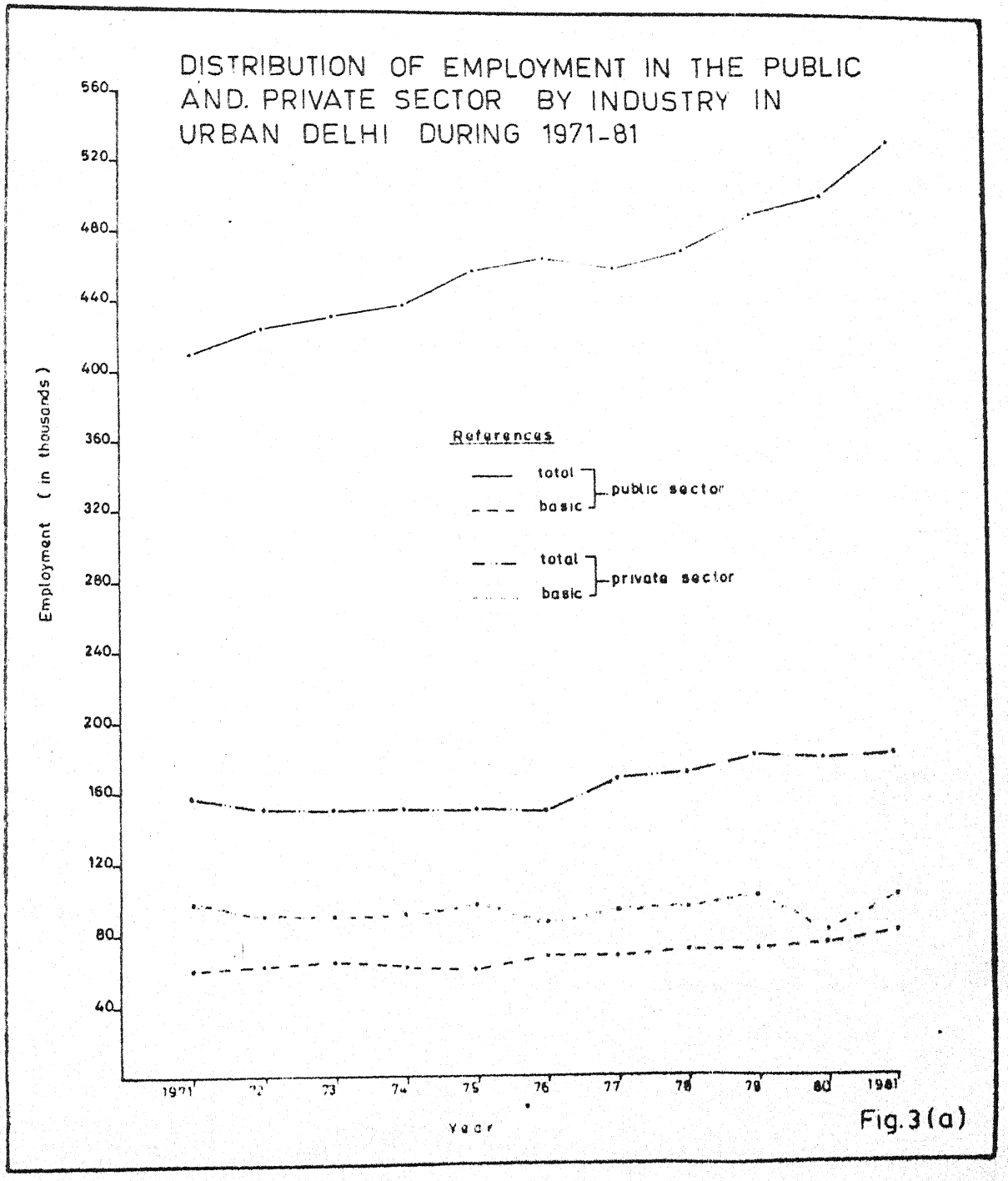
DISTRIBUTION OF EMPLOYMENT IN THE PUBLIC AND PRIVATE SECTOR BY INDUSTRY IN URBAN DELHI DURING 1971-81
Employment (in thousands)
560
520
480
440
400
360
320
280
240
200
160
120
80
40
References
total
basic
public sector
total
basic
private sector
1971
72
73
74
75
76
77
78
79
80
1981
Year

Fig. 3 (a)

significant to note that employment in public sector shows an ever increasing trend with a gradient of 1.28, while that of private sector with a gradient of 3.77 (Fig.3(a). The greater slope of private sector (gradient) implies that even a small change in its employment will affect the total employment more due to less proportion; and the lesser slope of public sector (gradient) implies that a small change in employment does not affect total employment more, because of its greater share in employment.

The share of employment in central government, public undertakings, Delhi state administration and local bodies to total employment has been 37 : 13 : 9 : 14, respectively. In public sector alone, the proportion of each of these components has been 51 : 18 : 12 : 19, respectively. A general equation of total employment in the five sector, thus, could be given as:

$$1000\ Et = 373\ Ec + 129\ Eu + 91\ Es + 144\ El + 263\ Ep'$$

Steps in Analytical Methods

In order to study the sectoral employment structure of urban Delhi, the study has been attempted through five aspects of the problem. In the first instance, a correlation matrix of 8 x 8 order has been constructed. It gives the mutual correlations among various sectors of employment. Secondly, it deals with the employment multiplier by activity and by sectors of employment. This also studies the linear trend of employment fitted by the least square method ($Y = a + bX$). Thirdly, it examines the cyclical volatility of employment in various sectors. Fourthly, it studies the responsiveness of sectoral employment to total employment (elasticity) by fitting the Cobb-Douglas model

($Y = aX^b$) and lastly, the marginal employment in each sector of employment.

Correlation Matrix

A look at the correlation matrix of 8 x 8 order significance (Table 3.4) gives the coefficient of correlation between two variables. In all 28 combinations are possible, excluding 8 self combinations (e.g. x_i - x_i etc.), which have perfect correlations with each other. From the table, it appears that variable x_3 i.e. Delhi state administration has a weak correlation with all other variables. In fact, the correlation of Delhi state administration employment with private sector employment has a low degree of negative value (- .005). It implies that there is almost negligible correlation only 5 per thousand. But negative correlation between the two suggests that an increase in the employment of Delhi administration is related to the decrease in private employment and vice versa. Employment in Delhi administration is significantly weak with respect to employment in all other sectors including total employment. Putting the correlation of all the sectors of employment in ascending order from weak to strong, the following picture emerges: private sector (- 0.5%), central government (7%), public undertakings (12%), public sector (15.4%), total employment (24%), all governments (31%), and local bodies (32%).

The correlation combinations of central government and public sector, of which central government, is a component are perfect (above 90%) correlations. Public undertakings and private sector; all governments and total employment; private sector and public sector/ and total employment; and public sector and total employment are also of the same order.

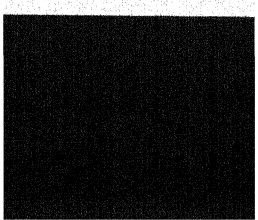

TABLE - 3.4

CORRELATION MATRIX

Variables	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8
X_1	1.000	0.878	0.072	0.479	0.763	0.931	0.869	0.862
X_2	...	1.000	0.119	0.731	0.936	0.986	0.977	0.987
X_3	...	...	1.000	0.321	-0.005	0.154	0.312	0.240
X_4	...	...	...	1.000	0.674	0.647	0.786	0.775
X_5	...	...	...	...	1.000	0.907	0.886	0.933
X_6	...	...	...	...	...	1.000	0.972	0.997
X_7	...	...	...	...	...	...	1.000	0.993
X_8	...	...	...	...	...	...	...	1.000

Notes on Variables: X_1 = Central Government,
X_2 = Public Undertakings,
X_3 = State Administration,
X_4 = Local Bodies,
X_5 = Private Sector,
X_6 = Public Sector Undertakings(X_1+X_2),
X_7 = All Governments ($X_1+X_2+X_3+X_4$) and
X_8 = Total Employment (X_5+X_7).

The correlations between all governments employment to total employment, public sector employment to total employment, public undertakings employment to all governments employment and to total employment, all are perfect correlations (99%).

Employment Multiplier

In modern income analysis, "an increase in investment will increase national income by a multiplied amount - by an amount greater than itself". This amplified effect of investment on income is called the multiplier doctrine.[1] Likewise, in employment analysis, an increase in employment in any activity or sector will increase total employment by a multiplied amount i.e. by an amount greater than itself. This is called employment multiplier.

On the basis of this analogy now, we proceed to determine the extent of change in total employment for a unit change in sectoral employment during 1971-81. In the Chapter-2, the methodology of working out employment multiplier has been discussed. The coefficient of employment multiplier is thus the value of regression coefficient of total employment on sectoral employment (activities) as well as in their selected combinations[2] of sectors of employment.

In model (1.1), it has been observed that total employment is a function of public sector employment (Ep) and private sector employment (Ep'). But in model (1.2) public sector employment is a function of

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1. Samuelson, P.A., Economics, McGraw-Hill International Book Company, Seventh edn. 1980, p.216.

2. The term combination here denotes various sectors of employment, namely, central government, Delhi state administration, public undertakings, local bodies, private sector, public sector, etc.

employment in central government (Ec), public undertakings (Eu), state administration (Es), and local bodies (El). And hence, the total employment (Et) is dependent on these five sectors of employment (Ec, Eu, Es, El and Ep').

In order to estimate the joint effect of these components on each sector of employment, the coefficient of multiple correlation has been found out. Multiple correlation coefficient (Ri, jk ...t) between the employment in ith sector (i = 1 ...5) and the joint effect of the employment in all other sectors including total employment (t), denoted by j, k, ...t, on ith sector has been obtained by the following formula:

$$R^2 i,\ j.k.....t = 1 - (W/W_{11})$$

Where,

$$W = \begin{bmatrix} 1 & r_{12} & r_{13} & \cdots r_{1n} \\ r_{21} & 1 & r_{23} & \cdots r_{2n} \\ r_{31} & r_{32} & 1 & \cdots r_{3n} \\ r_{n1} & r_{n2} & r_{n3} & \cdots 1 \end{bmatrix}$$

and, W_{11} is the matrix obtained by eliminating first row and first column of the matrix W.

Since coefficient of correlation does not explain the extent of relatioship or the degree of variation in the dependent variable, the coefficient of R^2 which measures the percentage variation in dependent variable explained jointly by the independent variables has been computed. It also indicates a good fit of a position related. $\bar{R}^2$ corrected for the degrees of freedom, has been computed from the

following formula.

$$\bar{R}^2 = 1 - (1 - R^2) \frac{n - 1}{n - k - 1}$$

where, k + 1 is the number of independent variables.

In the table 3.5, the values of regression coefficients (column 4) and those of $\bar{R}^2$ are given (column - 5). From the resuls, it appears

TABLE - 3.5

EMPLOYMENT MULTIPLIER BY SECTORS TO TOTAL EMPLOYMENT IN DELHI DURING 1971-81

S. No.	Sector of Employment	Intercept (X 10^6)	Coefficient of Multiplier	Coefficient of Multiple Determination ($\bar{R}^2$)
1	2	3	4	5
1.	Central Government	-.2243	3.637*** (.712)	.7148
2.	Public Undertakings	.4317	2.408***	.9734
3.	State Administration	.4765	2.712 (2.698)	-.0468
4.	Local Bodies	.2305	4.432*** (1.201)	.5575
5.	All Government (1+2+3+4)	.0341	1.283*** (.049)	.9852
6.	Public Sector (1+2)	.1358	1.562*** (.112)	.9507
7.	Private Sector	.0056	3.770*** (.483)	.8567

Note:-1. Figures in parentheses denote standard errors of regression coefficients.

2. Public Sector (1+2) is the area of study.

*** Significant at 1 percent level of probability.

that the regression coefficients (or values of employment multiplier) are positive in each sector of employment and also greater than 1. The employment multiplier is maximum in local bodies sector (4.4) followed by private sector employment (3.8), central government (3.6), state administration (2.7), public undertakings (2.5), public sector (1.6), and the combined employment in all governments (1.3). All the coefficients excepting Delhi State Administration are significant at 1 percent level of significance.

In the light of the second objectives of the study, the coefficients of employment multiplier of central government and allied undertakings have come out 3.6 and 2.5, respectively. It suggests that for 10 unit change of employment in the central government, the total employment will change by 36 units and in public undertakings by 25 units. The adjusted coefficients of multiple determination ($\bar{R}^2$) of central government explains 71.48 percent variation in total employment and that of public undertakings by 97.34 percent.

Taking central government and allied undertakings combined together (as public sector) gives the coefficient of employment multiplier of 1.6, which implies that increasing employment in public sector by 10 will generate total employment by 16 units. The value of $\bar{R}^2$ explains 95.07 percent variation in the total employment. The analysis thus indicates the dominance of these sectors on the generation of total employment.

The employment in private sector also commands a very good position over total employment. The extent of variation in the total employment explained by private sector is 85.67 percent. Even the employment in local bodies which explains the percentage variation of 55.75 percent is

also significant at 1 percent level of confidence. But the employment in state administration with a negative value of R^2 = -.0468 indicates the reverse relation between its employment and the joint effect of all other sectors of employment on it.

Intercept and Significance of Sectoral Employment

Intercepts in each sector of employment has a positive value (excepting central government) which indicates minimum level of employment when sectoral employment is zero. Thus, if state administration does not provide any employment, total minimum level of employment is 4,76,496.

The employment in central government is interesting and significant as the value of intercept is negative - $.2243 \times 10^6$ and very high also i.e. above 2 lakhs. The significance of this relation lies in the fact that the total employment tends to be negative, when central government employment is zero (Y = -224314 + 3.6X). In this case, zero level of employment is attained when central government employment is 62,310 (hypothetical). The emerging relation between central government employment and total employment depicts the reality of urban Delhi, where employment in central government can not be avoided. Realistically total employment is greater than sectoral employment. In this case, it is the minimum of 87 thousand estimated employment in central government, when the total employment becomes 89 thousand (more than sectoral employment). It becomes quite obvious that the minimum level of employment of less than 87 thousand in central government is not feasible at all.

The illustration given in figure-3(b) indicates that there has been an increasing pattern of growth of employment during 1971-81 both in

REGRESSION LINES OF TOTAL EMPLOYMENT ON EMPLOYMENT IN CENTRAL GOVERNMENT AND PUBLIC UNDERTAKINGS IN URBAN DELHI DURING 1971-81

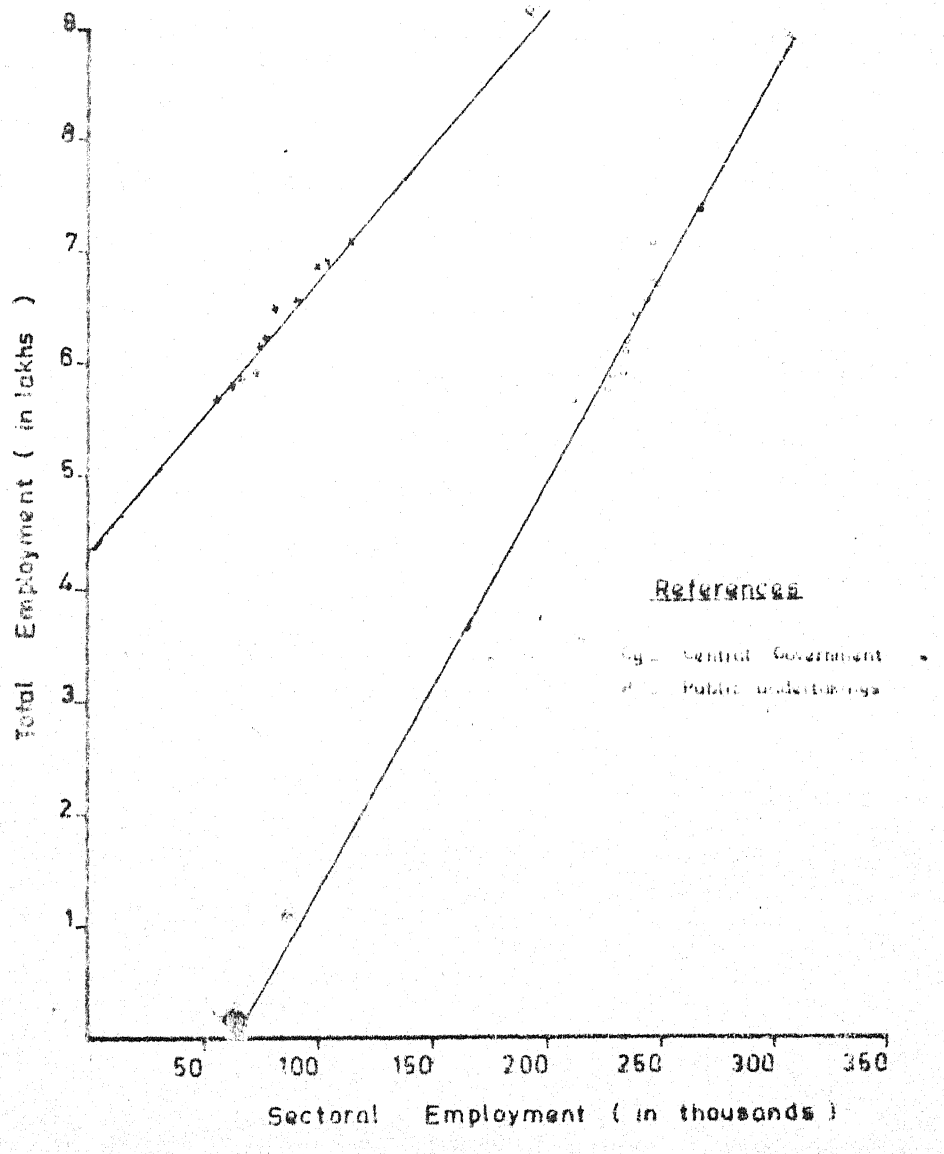

Fig 3(b)

central government and public undertakings which substantiates the above findings.

Employment Stability

Employment over a period of time has a trend pattern, besides cyclical fluctuations in employment. Hence in determining the cyclical stability trend components has been removed. This is accomplished by regressing employment (in the above seven components i.e. sectors of employment) on a time trend variable. The residuals from the regression divided by the level of estimated employment give the cyclical pattern of employment in each sector during 1971-81. This measure of cyclical volatility of employment in each sector is then regressed on that for total employment. The coefficient thus obtained by regression is called the coefficient of elasticity which measures the cyclical sensitivity of employment in central government, public undertakings, Delhi state administration, local bodies and both private and public sector relative to the cyclical changes in total employment. The coefficient of elasticity thus calculated is based on the following formula:

$$[(E_i - \overline{E}_i)/\overline{E}_i]_t = a_t + b_t\,[(E_j - \overline{E}_j)/\overline{E}_j]_t$$

Where,

E_i is employment in sector i

(i = 1..... 7) in year t,

$\overline{E}_i$ is the estimated employment based on the regression measure fitted by the method of least squares E_j and $\overline{E}_j$ are the corresponding variables for total employment, a is the intercept and b is the coefficient of elasticity.

The resulting elasticities of the model fitted are given in table-3.6.

TABLE - 3.6

CYCLICAL EMPLOYMENT RESPONSE ELASTICITIES OF PUBLIC AND PRIVATE SECTOR EMPLOYMENT IN URBAN DELHI DURING 1971-81

S. No.	Sectors of Employment	Elasticity Coefficient	Intercept ($\times 10^6$)
1.	Central Government	1.1269***	.2243
2.	Public Undertakings	- .5459***	.4317
3.	Delhi State Administration	2.8574	.4765
4.	Local Bodies	.2666***	.2307
5.	Public Sector (1+2)	.3117***	.1358
6.	Private Sector	.4217***	.0056
7.	All Government (1+2+3+4)	.6906***	.0341

Note: *** Elasticity coefficient significant at 1 percent level of probability.

It appears from the table that the coefficient of elasticity for all the sectors of employment excepting public undertakings is positive. The interpretation of this elasticity measure is that if employment in any sector fluctuates more than the total employment, it is procyclical employment, if less than unity, it is countercyclical employment. Thus, employment in central government and Delhi state dadministration are procyclical i.e. employment in these sectors have fluctuated more than fluctuations in total employment and the maximum fluctuation (procyclical) has been in the latter case. The coefficient of elasticity in all government employment is about 0.69. It indicates

that the fluctuation in public sector employment has been nearly the same as that of total employment.

The fluctuations in employment of local bodies, private sector and even in the public sector have been countercyclical, each having elasticity coefficient of less than unity. The employment fluctuation in public undertakings is the least, having a negative coefficient and hence public undertakings have shown less fluctuations (having an ever increasing and almost a linear trend in employment) than the total employment which seems to have been very significant during 1971-81.

In view of the above observation, it could be concluded that the employment in central government and Delhi state administration has been lesser stable or more cyclical than the total employment. The employment stability in other sectors of employment, given in the increasing order is as follows: all governments < private sector < public sector < local bodies. And very significantly employment in public undertakings is most stable or highly countercyclical than all other sectors of employment.

Employment Elasticity

The employment response elasticities of public and private sector employment are given in the table - 3.7. It reveals that employment in central government has been more responsive to the total employment with employment elasticity of greater than 1 (e = 1.298). In private sector, the employment elasticity was unitary (e=1.000). But in the case of employment in all governments, public sector, local bodies, public undertakings and Delhi state administration, the elasticity has been less than 1. All government employment with an elasticity coefficient

of .939 over all other sectors of employment and total employment indicates a very high elasticity with respect to total employment.

TABLE - 3.7

EMPLOYMENT RESPONSE ELASTICITIES OF PUBLIC AND PRIVATE SECTOR EMPLOYMENT WITH RESPECT TO TOTAL EMPLOYMENT IN URBAN DELHI DURING 1971-81.

S. No.	Sectors of Employment	Intercept (x 10^6)	Coefficient of Elasticity	Coefficient of Multiple Determination ($\bar{R}^2$)
1.	Central Government	- .2243	1.299*** (0.254)	.7139
2.	Public Undertakings	.4317	.325*** (.016)	.9750
3.	Delhi State Administration	.4765	.283 (.327)	-.0257
4.	Local Bodies	.2307	.633*** (.178)	.5817
5.	All Government (1+2+3+4)	.1358	.939*** (.029)	.9913
6.	Public Sector (1+2)	.0341	.729*** (.060)	.9484
7.	Private Sector	.0056	1.000*** (.127)	.8728

Note: Figures within parentheses denote standard errors of elasticity coefficient.

*** Significant at 1 percent level of probability.

Marginal Increase in Employment

The marginal increases in total employment have been worked out from the above equation by multiplying $\bar{Y}/\bar{X}$ with coefficient of elasticity for each sector of employment given in table - 3.8.

TABLE - 3.8

MARGINAL EMPLOYMENT IN PUBLIC AND PRIVATE SECTOR DURING 1971-81

S. No.	Sectors of Employment	Marginal Employment
1.	Central Government	3.485***
2.	Public Undertakings	2.520***
3.	Delhi State Administration	3.113
4.	Local Bodies	4.410***
5.	Public Sector (1+2)	1.357***
6.	All Government (1 to 4)	1.989***
7.	Private Sector	3.804***

*** Significant at 1 percent level of probability.

From the table, it appears that incremental change in employment in local bodies is the highest (4.41) among other sectors. It is nearer to employment multiplier (4.43). Thus, the marginal and average employment both together increase the total employment by more than four-fold.

Chapter - 4

EMPLOYMENT GROWTH AND ECONOMIC ACTIVITY

Having discussed the public employment in service sector and its growth, multiplier and elasticity in Chapter-3, an attempt is being made here to see the similar characteristics of employment in various economic activities, in urban Delhi. Based on the national classification code, the activities have been further classified industrywise by the Director of Employment and Training, Delhi, namely, agriculture, manufacturing; electricity, gas and water, construction, wholesale and retail trade, transport, storage and communication, finance, insurance and business services and community and personal services.

In order to identify the basic sector, the economic activities of agriculture, manufacturing, electricity, gas, water and construction have been clubbed together for analytical purposes of this study. The entire analysis of the chapter has been done in terms of public sector, private sector and for the total. Taking employment as the proxy for economic activity, the analysis has been attempted.

Growth of Employment and Activity Pattern

An analysis of the Table 4.1 reveals the percentage distribution of employment in different activities with respect to total employment in Delhi during 1971-81. The distribution of employment in different economic activities by sectors of employment for the years 1971 to 1981 has also been presented through Fig. - 4(a). The compound annual growth rate of employment in different activities is given in the table 4.2.

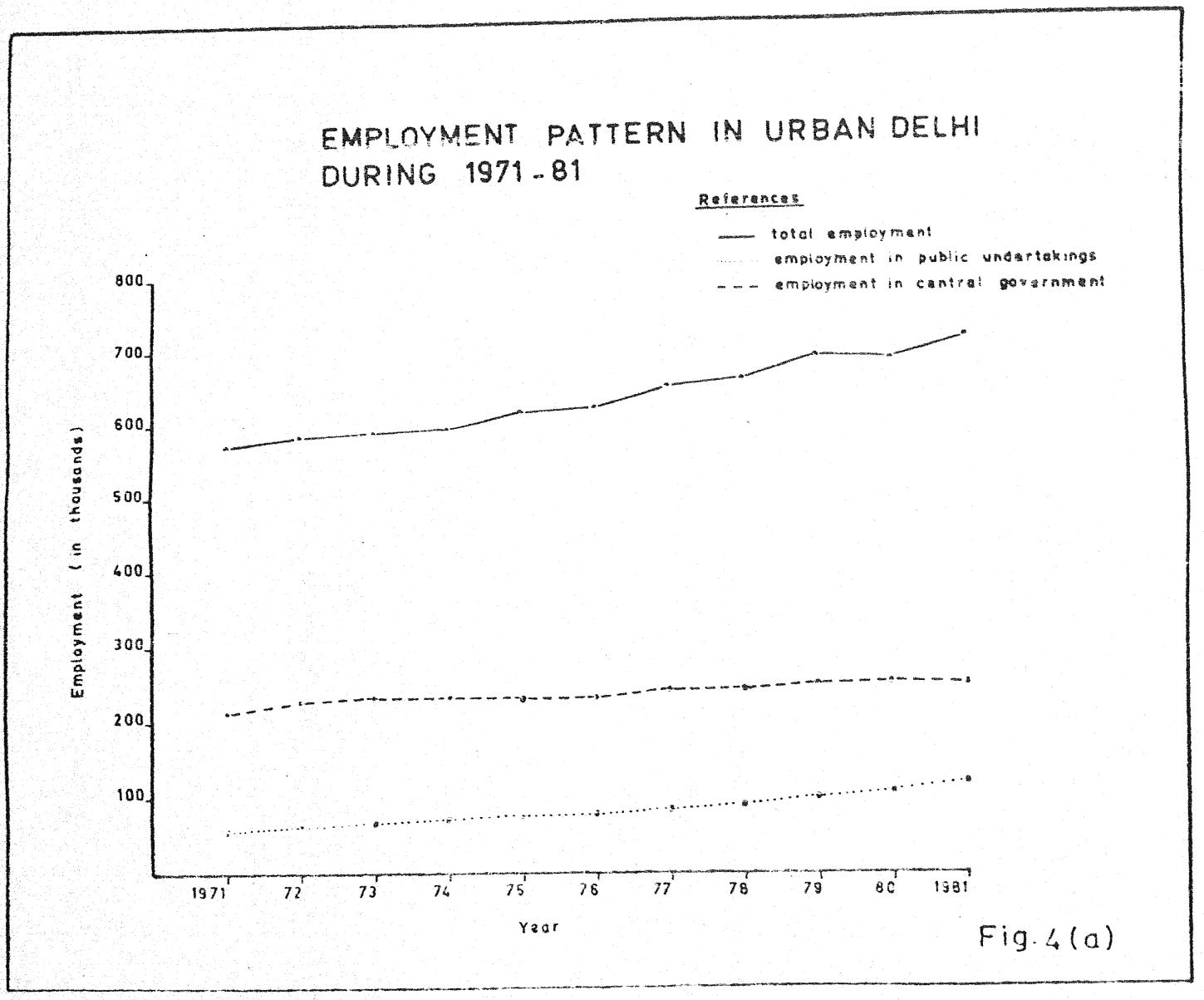
EMPLOYMENT PATTERN IN URBAN DELHI
DURING 1971-81
References
total employment
employment in public undertakings
employment in central government
Employment (in thousands)
800
700
600
500
400
300
200
100
1971
72
73
74
75
76
77
78
79
80
1981
Year

Fig. 4 (a)

Agriculture

An analysis of the tables given above reveals that public sector has provided employment in agricultural pursuits (like gardening, horticulture, etc.) which is also reflected in the total employment. Till 1974-75, employment in agricultural pursuits had no place even in the public sector. In a short span of six years, employment in agricultural pursuits declind between 2-9 percent which was having only a share of 0.25 per cent in the total during 1981.

Manufacturing and Processing

Manufacturing employment in private sector (15.18 percent) is more than the public sector (2.98 percent). In the initial three years of the decade 1971-81, public employment in manufacturing witnessed an enormous growth rate but with a declining trend from 21 to 7 percent. Whereas, the private employment in maufacturing activity though declined till 1975-76, it has also shown increasing trend at an average growth rate of 1 percent. This inverse relationsip in the growth rate of employment in manufacturing activity between public and private sector is being depicted in the Figure -4(b) and 4(c) respectively. The total employment has fluctuated between + 1 and + 2 percent during the last ten years and the pattern of its growth rate conformed to the pattern of employment in private sector, obviously because of its lion's share.

Electricity, Gas and Water

Employment in electricity, gas and water has shown consistently increasing trend over 1 percent in public sector after 1975-76. But in private sector, it has shown its declining trend upto 1978 and thereafter, increased and touched the highest level of growth, nearly 6

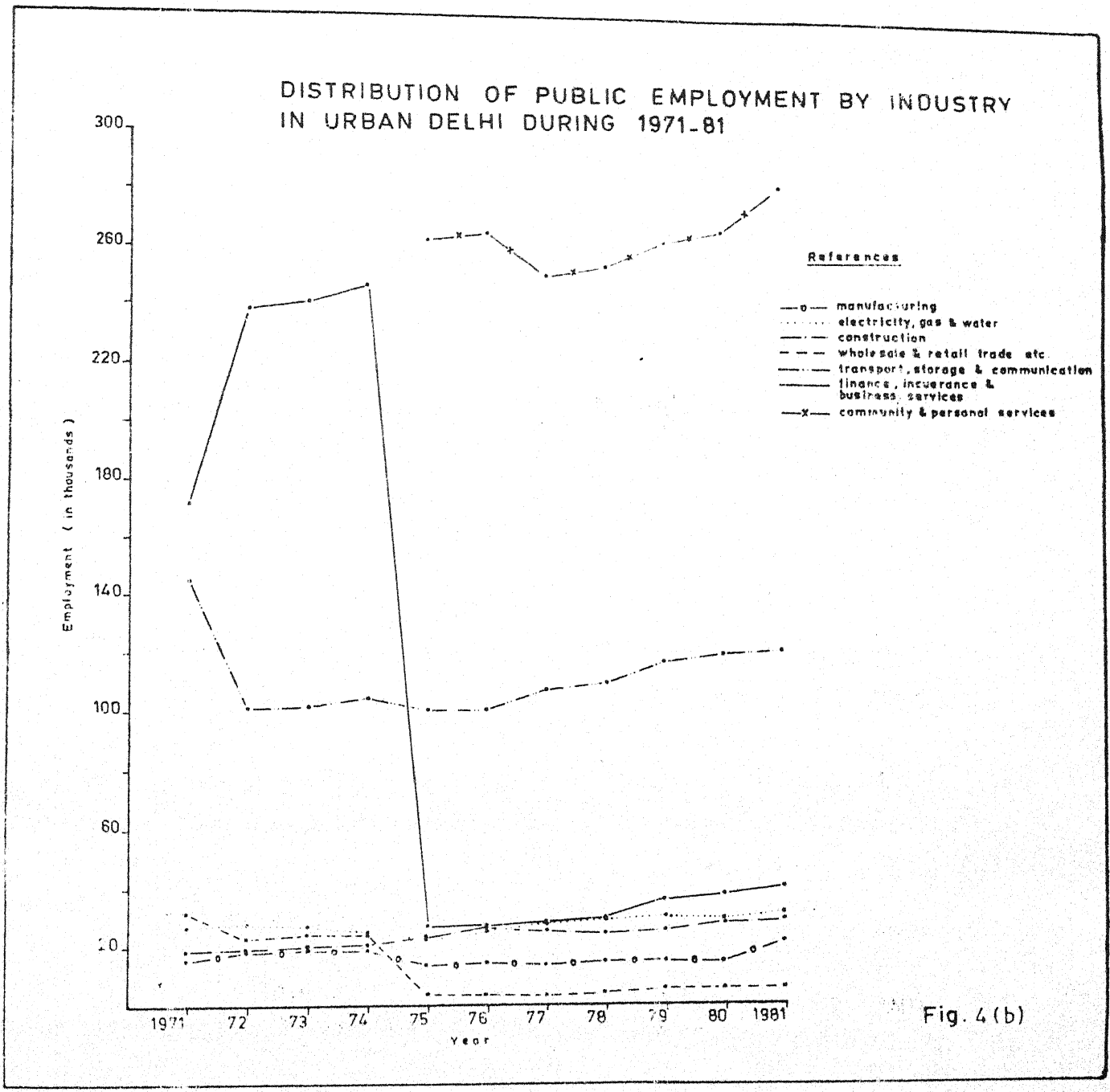
DISTRIBUTION OF PUBLIC EMPLOYMENT BY INDUSTRY IN URBAN DELHI DURING 1971-81
Employment (in thousands)
300
260
220
180
140
100
60
20
1971
72
73
74
75
76
77
78
79
80
1981
Year
References
manufacturing
electricity, gas & water
construction
wholesale & retail trade etc.
transport, storage & communication
finance, incuerance & business services
community & personal services

Fig. 4 (b)

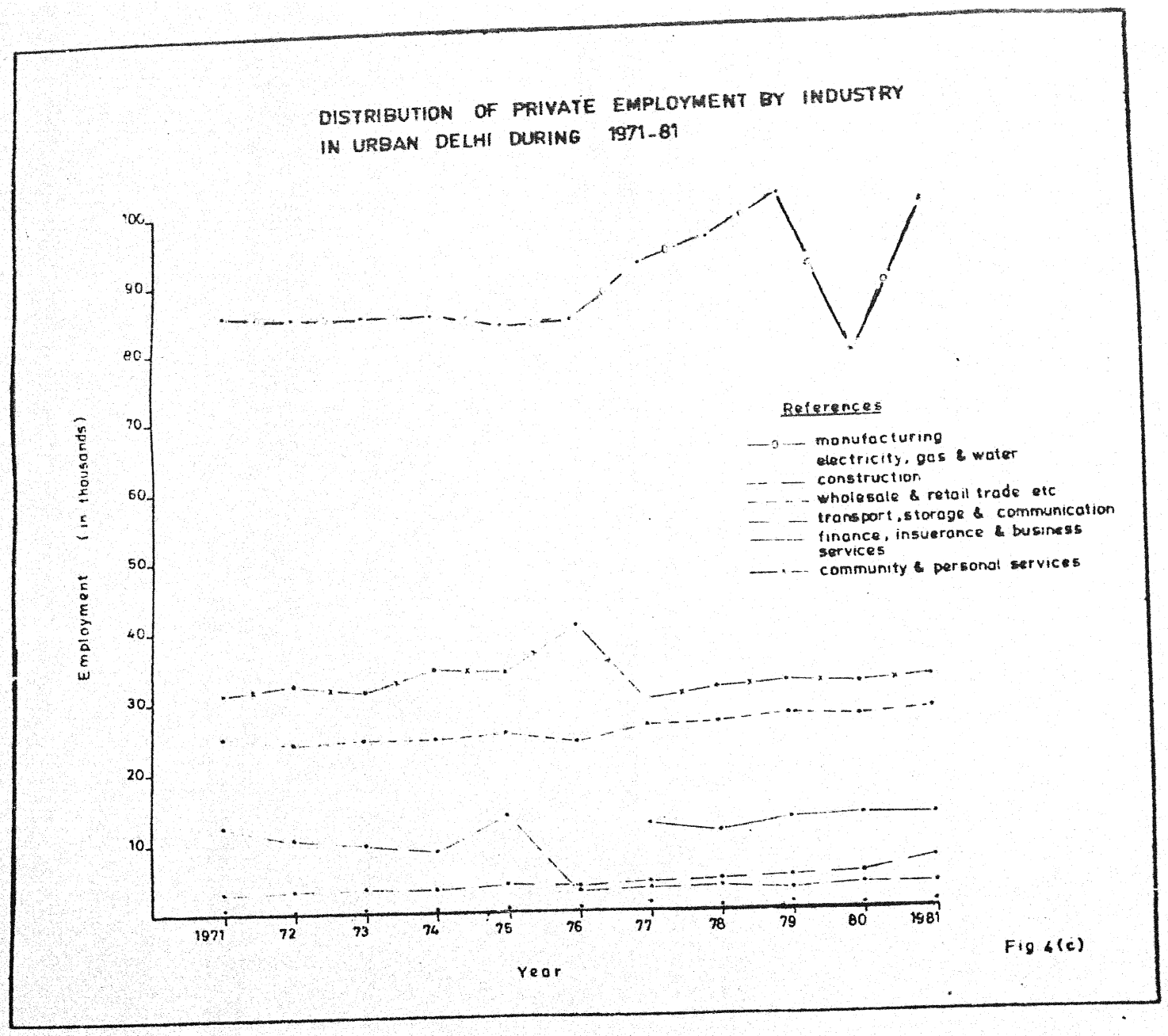
DISTRIBUTION OF PRIVATE EMPLOYMENT BY INDUSTRY
IN URBAN DELHI DURING 1971-81
Employment (in thousands)
100
90
80
70
60
50
40
30
20
10
1971
72
73
74
75
76
77
78
79
80
1981
Year
References
manufacturing
electricity, gas & water
construction
wholesale & retail trade etc
transport, storage & communication
finance, insuerance & business services
community & personal services

Fig 4(c)

percent. The enormous growth of employment in this activity is explained by the minimal representation of employment in the private sector i.e. 0.11 percent only. The growth of aggregate employment in electricity, gas and water is similar to the trend of public sector employment because nearly 4.33 percent of employment in this activity is contributed by public sector only (Table 4.1).

Construction

Public sector employment in construction activity is about 4 percent of the total employment. The growth of public employment in this activity has varied annually between 2 to 7 percent, but at the same time, there has been tremendous fall in private employment from 25 to 12 percent though its share in the total employment has declind from 2.2 percent in 1971 to 0.46 percent in 1981. Although increase in public employment in construction activity has compensated numerically private employment, it has not increased in the same proportions. The former increased by 56 percent, while the later declined by 75 per cent. Thus there has been a real decrease of total employment in construction activity with shifting of jobs from private sector to public sector.

Wholesale and Retail Trade

A bulk of employment is provided by wholesale and retail trade in the private sector. But a heavy reduction of employment in this activity has been noticed both in public and private sector. As a consequence, the total employment has gone down from about 10 per cent to 4.72 percent during 1971-81.

Transport, Storage and Communication

The employment in transport, storage and communication shares about

18 percent of the total employment but the share of public sector has gone down from 25.63 percent in 1971 to 16.90 percent. Its growth rate has also declined from 30.6 percent to 1.8 percent but employment in the private sector has shown consistently increasing trend from 3.2 percent to 9.6 percent during 1971-81. The increase in the private sector employment of this activity has been due to more rapid expansion of transport business by the private sector, while government has, perhaps, found no use of expanding it. Since the total employment in this activity has fallen significantly, the trend of decline conforms well to the trend of decline in the public sector.

Finance, Insurance and Business Services

The finance, insurance and business services which had a share of 30.25 percent in 1971 has gone down to 7.42 percent during 1981. The public employment in this activity has been heavily reduced from 1,72,000 in 1971 to 40,000 in 1981. But the private sector made an entry and also started providing employment in this activity after 1977. The employment in public sector since 1975 has been declining drastically from 37 percent to 15.5 percent and the trend of decline conforms to the trend of decline in the total employment, also.

Community and Personal Services

Prior to 1975 there was no classification of this activity in the public sector and the employment in the community and personal sevices was shown in the private sector only. But since then, public sector also included this activity under separate category and as consequence about 2.6 lakhs jobs were classified under personal and community services. Having share of 39.55 percent in the total employment. As a

result, 75 percent growth of employment was noticed in the total employment of community and personal services during 1975-76. Between 1975-81, public employment in this activity recorded a compound growth rate of 1.3 percent, while private sector increased by 0.3 percent during 1971-81. Total employment in community and personal services has also recorded a growth of about 26 percent on a compound rate of growth during 1971-81.

Basic Sector

The basic sector which consists of agriculture, manufacturing, electricity, gas and water and construction activity provided 25.9 per cent of total employment in this sector. The share of public sector in the total employment was 11.45 percent and in the pivate sector 14.45 percent. Thus the share of public and private sector in the basic activity was in the ratio of 42:58 attributing fluctuations in the growth rate of total employment in the basic activity from time to time.

Employment Multiplier and Elasticity: Activity Analysis

A look at tables 4.3, 4.4 and 4.5 reveals that elasticity of total employment in public and private sector to the total employment has been about 96 percent, coefficient being .95 and .96 respectively. The elasticity of public sector employment in community services to the total employment was 1.02 and that of total basic employment to total employment .92 suggesting that the percentage change in the employment of these activities, has proportionately increased the total employment.

From an increase of 100 persons, the employment in agriculture declined by 25.80 percent and of trade by 6.15 per cent in the public sector; whereas, the employment in the private sector of

construction activity has declined by 8.59 percent and in trade by 7.84 percent. Finance insurance and business services in public sector also declined by 5.07 and in the total by 5.02 percent and community and personal services in the private sector by 6.92 percent. Such a decline in the employment of different activities has the inverse relation (denoted by the negative coefficient of elasticity) with the total employment. Each of the coefficients are inelastic as 0 > coefficient of elesticity <-1 exhibiting the attributes of demand elasticity.

The employment in other activities which has positive elasticiity exhibits the attributes of elasticity of supply having a direct reltion with the total employment i.e. any increase in the activity employment directly increases the total employment in the same proportion. With the exception of community and personal services, all the coefficients are inelastic and in some cases they have even zero elesticity (o < coefficient of elasticity < 1) wich states that inspite of a cut in the activity employment, the total employment is not reduced. Any percentage increase in the employment of other activities is proportionately less than the percentage increase in the total employment.

The economic base of Delhi in the public sector is so strong that a unit increase in basic sector employment increases the total employment by 7 units, while in the private sector, it is insignificant. The basic activity in public sector employment is very strongly related to the total employment together with other activities as the coefficient of determination ($\bar{R}^2$) is 86.54 percent. The minimum level of employment corresponding to the zero level of employment of basic activity in public sector, private sector and the combined total of both the sectors

is 1.44 lakhs, 5.6 lakhs and 53 thousand, respectively. The low level of employment could be interpreted by the fact that the basic activity comprises 25.90 percent of the total employment (Table 4.1). The elasticity of public sector employment in the basic activity and the total employment is elastic near unity (β---> 1). The regression lines plotted for the employment in basic activity of public sector, private sector and the total are shown in Fig. 4(d). It depicts a widening gap between the public sector and private sector. The former is increasing more than the other components of private sector. As a consequence, its line of best fit is not so rising; rather its gap with the total is narrowing. It may, therefore, be concluded that even the basic activity is becoming an important field of employment for the public sector.

Manufacturing activity in the private sector has shared nearly 14 percent of the total employment, while in the public sector, it has been only 3 percent (Table -4.1). The maufacturing activity in the public sector has increased the total employment level by 1.29 units, while the private sector by 3.34 units. Thus, the strength of increasing total employment level has been more in the private sector than in the public sector. This phenomenon of relatively more increasng pattern of employment has been shown in the figure -4(e), where regresion line of private sector has a greater slope than the slope of public sector manufacturing employment.

As regards, employment in electricity, gas and water, in the public sector an increase of five units of employment increases the total employment by 63 units (multiplier 12.6) and at the zero level of its employment, total employment is above 2.83 lakhs. The employment in this activity is well related with the total employment considered jointly with other activities of employment ($\bar{R}^2$=43.38 percent). But

REGRESSION LINES OF TOTAL EMPLOYMENT ON BASIC EMPLOYMENT IN URBAN DELHI DURING 1971-81

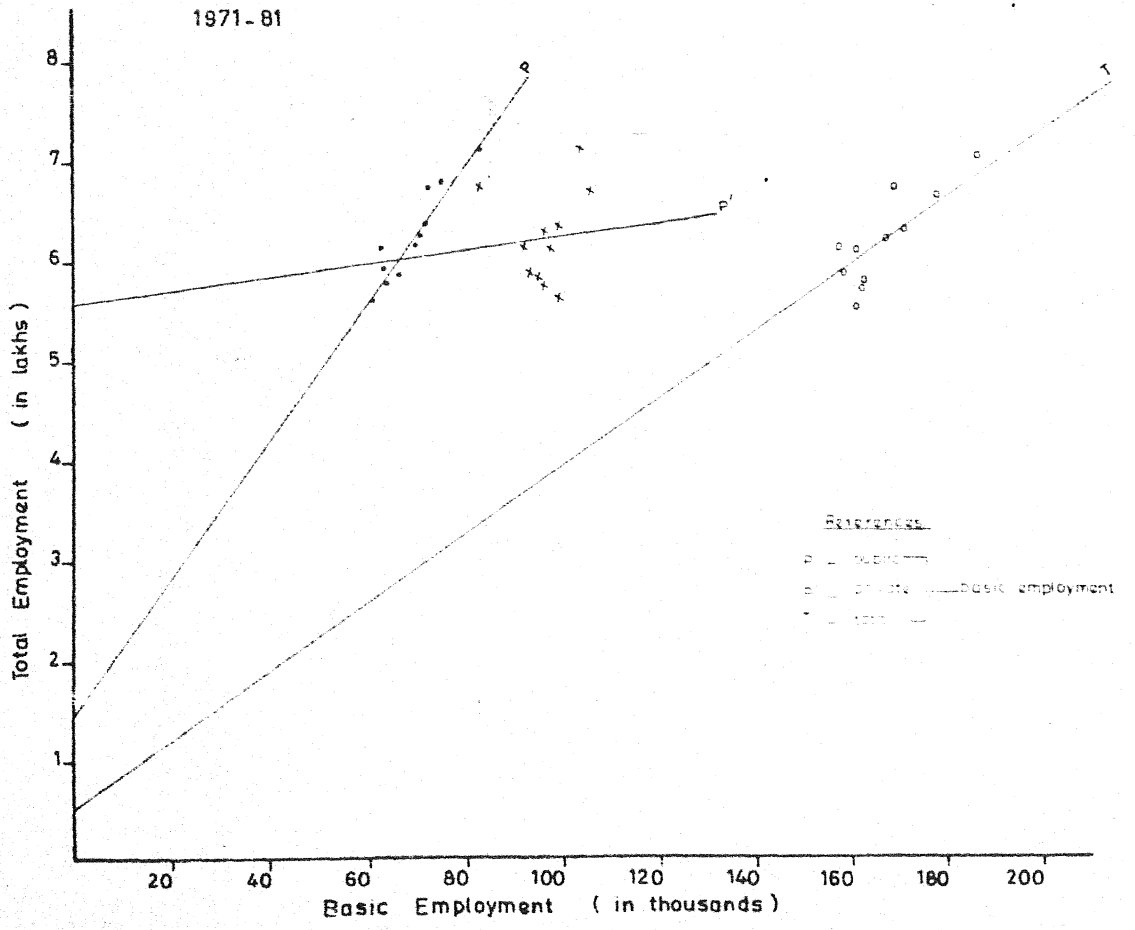

Fig.4(d)

REGRESSION LINES OF TOTAL EMPLOYMENT ON EMPLOYMENT IN MANUFACTURING IN URBAN DELHI DURING 1971-81

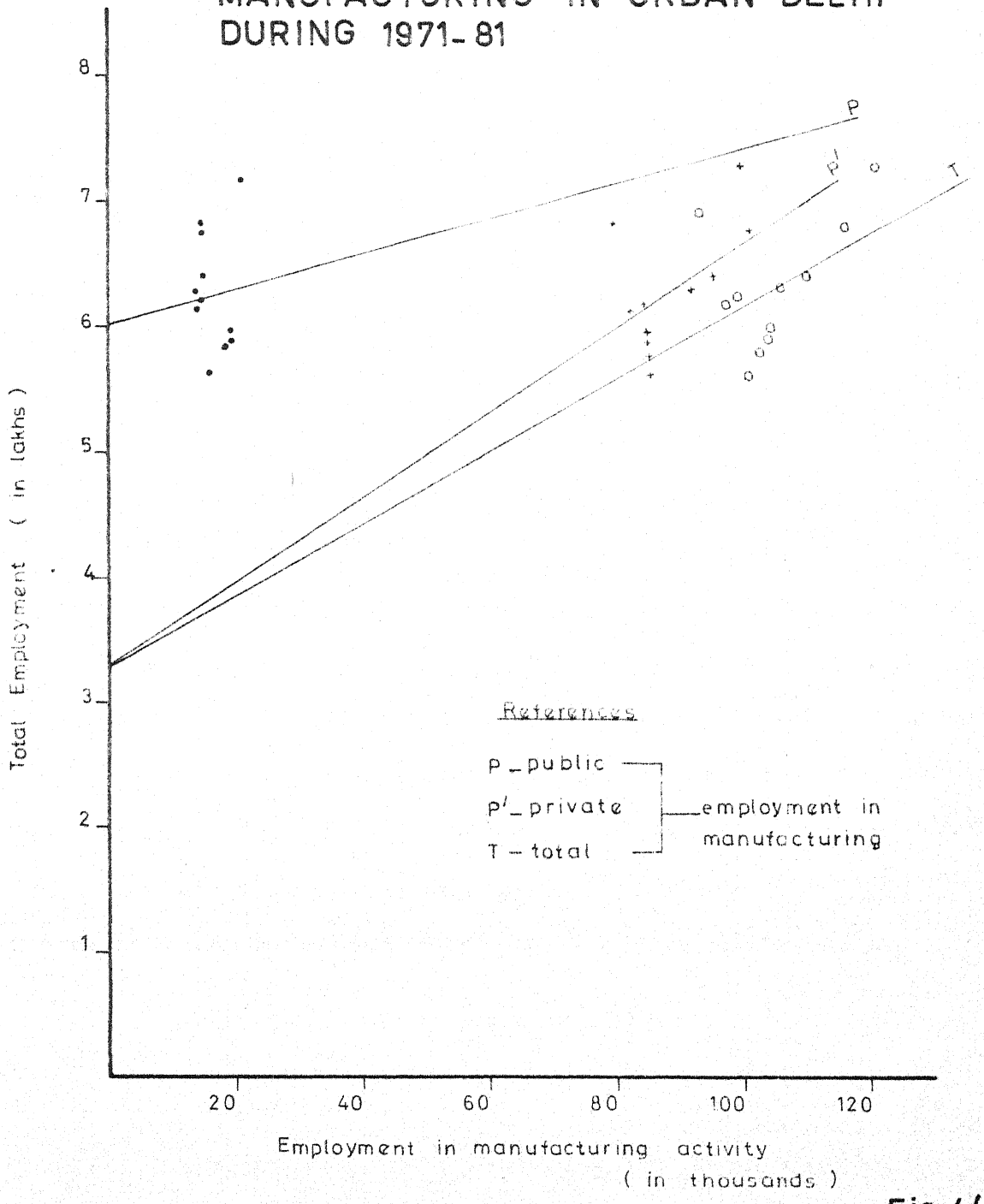

Fig. 4(e)

the coefficient of elasticity is though weak (0.50), it indicates that there is no possibility of a decline in the total employment of this activity, even if, the overall employment declines. The minimum level of employment (5 lakhs) is nearer to the total employment level.

In construction activity, every increase of 5 workers in the public sector has increased the total employment by 61 units (multiplier = 12.2). Workers in construction activity have a strong relationship with the workers in other activities ($\bar{R}^2$=79.61 percent). The total workers in construction activity have a negative coefficient of multiplier (-0.15) approaching towards zero but the positivie elasticity (.01) indicates only its reduced share of employment from 5.48 percent in 1971 to 4.35 percent in 1981 (Table 4.1). The regression lines of the public, private and total employment plotted in the Fig. 4(f) show an upward rising pattern of public, private and total employment, a steep-downward private sector employment and with a near horizontal (slightly tilted downward) line for the total employment suggesting that public sector has tried to maintain its level of employment by absorbing those who were thrown out of jobs by the private sector. This is indeed the prime objective of public sector to create employment opportunity for unemployed to give a fillip.

In transport activity, public sector employment has declind significantly from 26 percent in 1971 to 17 percent in 1981 (Table - 4.1), but at the same time it has increased in the private sector from 0.5 percent to 1 percent. This has resulted in the decline of total employment in transport, storage and communication. This also substantiates our earlier observation that private sector has neither

REGRESSION LINES OF TOTAL EMPLOYMENT ON EMPLOYMENT IN CONSTRUCTION IN URBAN DELHI DURING 1971-81

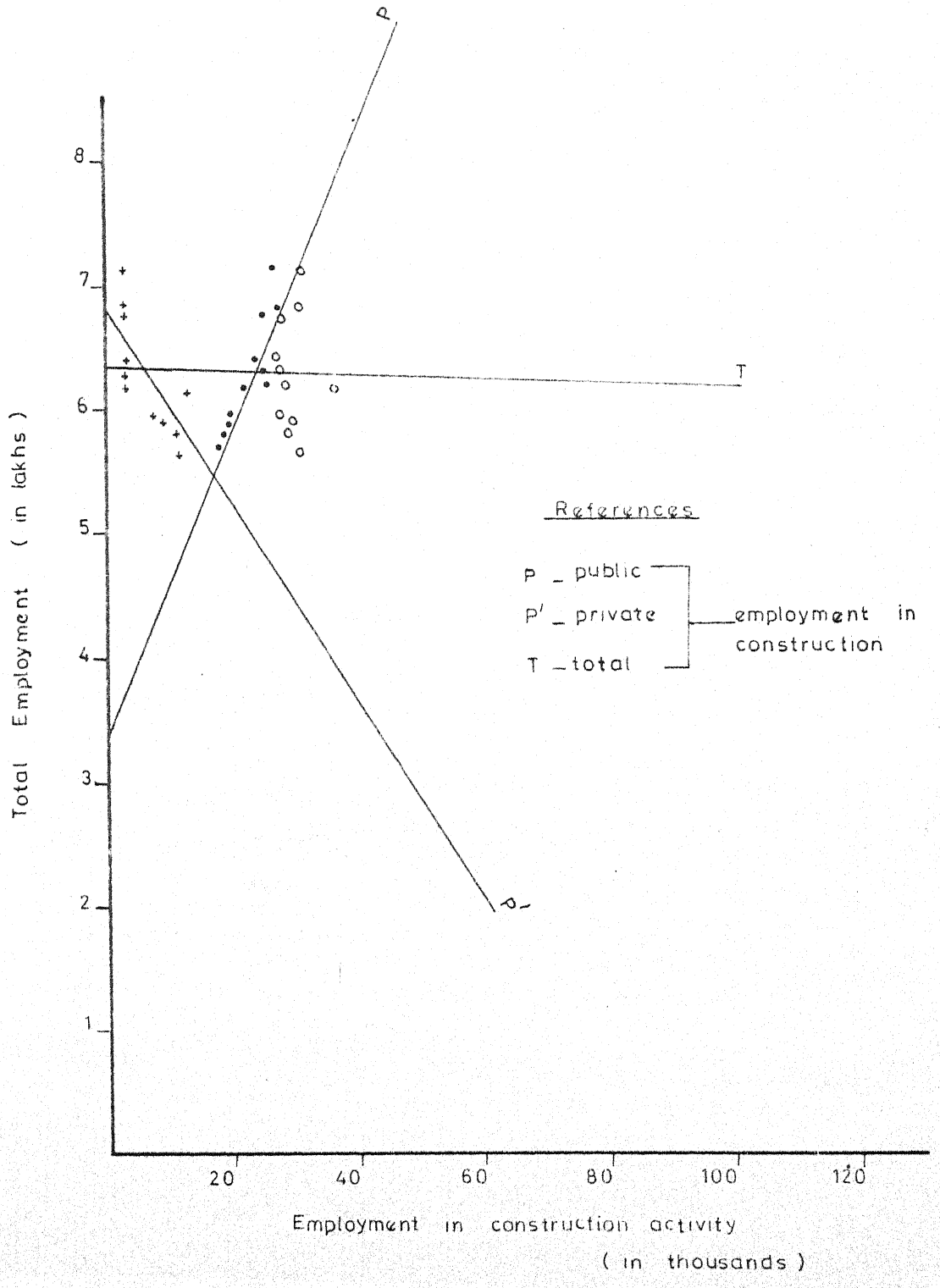

Fig. 4(f)

compensated nor exploited the ex-employed persons, when transport industry started shifting from public to private sector. The value of multiplier in the private sector is very high (.35) with a very strong coefficient of determination ($\bar{R}^2$=90.89 percent).

In general, wholesale and retail trade activity has shown decreases in employment. In public sector alone, it has gone down from its 1971 level of 5.59 percent to even less than 1 percent in 1981. Coresponding share in the private sector has also declined from 4.4 percent to 3.94 percent (Table - 4.1). Consequently, the total employment declined from 9.99 percent in 1971 to 4.72 percent in 1981. The coefficient of elasticity of employment in this activity to total employment is also negative (-.06). It may be on account of substitution of employment to some other activity but within the public sector. Unlike construction activity, the employment gap created by the public sector (because of its losing in trade activity) has not been filled up by the private sector, although it has expanded in trade activity. It has not absorbed the residual of public sector. The reasons that could, possibly, be assigned to, are that

(i) the private sector does not aim even at the least employment stability;

(ii) opening of new and big business offices and their headquarters in Delhi did not employ more people; and

(iii) there seems to have been substitution of employment from trade to services activity of finance, insurance and the related businss activities, particularly after 1976.

Moreover, private sector has been the victim of Government policy of expanding business and paying high taxes, although there have been incentives for trade expansion. Apparently, trade activity (and employment also) has expanded enormously in the private sector, but it

is all clandestine. The clandestine business operating in the metropolitan city like Delhi - the capital of India, has given rise to a number of evils like hoarding, black marketing, smuggling, etc. which ultimately lead to a shocking state of existing parallel economy with invisible employment.

This above trend is also noticeable in the service activities of finance, insurance and business services in the public sector and community and personal services in the private sector. The extent to which the trade activity has suffered or made to suffer, is not visible in the private sector activities of finance and insurance and community and personal services. In fact, for a unit increase in these services in the private sector, have multiplied the total employment by 6 units.

A polynomial regression model explained by

$$Y = a + \sum_{i,j,k=1}^{7} b_{ijk} \cdot X_i$$

(j>i,k and its corresponding to total employment) where Y is the total employment and xs' (x_1,x_2,---)are employment in manufacturing; electricity, gas and water; construction; wholesale and retail trade; transport and communication; finance; insurance and business services; community and personal services, respectively; and $b_{ij.k}$ ($b_{18.2}$,$b_{28.13}$..) etc. are partial multipliers of each activity with respect to total, when other employment on other employment on other activities is considered as constant, the fitted model could be given as:

$Y=-29345+.28X_1+1.92X_2+1.24X_3+65\ X_4+1.35X_5+1.20X_6+1.14X_7$.

The negative constant (-29345) suggests that at the zero level of employment in all activites, total employment is negative (not feasible)

or in other words, at a moment of time, zero level of employment in all activities is not possible and it should be a minimum of 29345, as the sum total of employment in all activities. It is also important to note that all partial multipliers are significant at 1 percent level of probability and the coefficient of determination ($\overline{R}^2$) is 99.97 percent, when considered jointly with total employment.

TABLE - 4.1

PERCENTAGE DISTRIBUTION OF ACTIVITY EMPLOYMENT TO TOTAL EMPLOYMENT IN DELHI, DURING 1971-81.

Sl. No.	Activity	Public Sector		Priate Sector		Total	
		1971	1981	1971	1981	1971	1981
1.	Agriculture	-	0.25	-	-	-	0.25
2.	Manufacturing	2.68	2.98	15.18	13.88	17.86	16.86
3.	Electricity, Gas and Water	4.65	4.33	0.08	0.11	4.73	4.44
4.	Construction	3.27	3.89	2.21	0.46	5.48	4.35
5.	Wholesale and Retail Trade	5.59	0.78	4.40	3.94	9.99	4.72
6.	Transport Storage and Communication	25.63	16.90	0.50	0.98	26.13	17.88
7.	Finance Insurance and Business Services	30.25	5.59	-	1.83	30.25	7.42
8.	Community and Personal Services	-	39.55	5.56	4.53	5.56	44.08
	Total	72.07	74.27	27.93	25.73	100.00	100.00
	Basic (1+2+3+4)	10.60	11.45	17.47	14.45	28.07	25.90

TABLE - 4.2

ANNUAL COMPOUND GROWTH RATE OF EMPLOYMENT BY ACTIVITIES IN DELHI DURING 1971-81

Year	Sector/ Activity	Agri- culture	Manufac- turing	Electri- city, Gas and Water	Construc- tion	Wholesale and Retail Trade	Transport Storage & Communi- cation	Finance, Insurance & Business Services	Community and per- sonal Services	Total Employment	Basic Employ- ment (3+4+5+6)
1	2	3	4	5	6	7	8	9	10	11	12
1971-72	Public	-	20.861	3.445	2.500	-27.962	-30.586	38.127	-	4.069	7.550
	Private	-	-0.049	-1.072	-13.804	- 4.460	3.180	-	1.449	-2.574	-1.967
	Total	-	2.321	3.366	- 4.066	-17.599	-29.992	38.127	1.449	1.250	2.383
1972-73	Public	-	11.079	0.768	4.348	-12.619	-15.982	18.324	-	2.894	4.562
	Private	-	-0.450	-1.950	-10.848	- 0.711	6.635	-	.478	-1.710	-0.959
	Total	-	1.362	.722	- 1.490	7.186	-15.494	18.325	.478	.703	1.832
1973-74	Public	-	7.269	-2.377	3.253	- 8.055	-10.276	12.614	-	2.359	1.956
	Private	-	- .264	-2.118	-14.635	- .191	2.895	-	3.094	-1.865	- .488
	Total	-	.939	-2.373	- 3.167	- 4.432	- 9.987	12.614	3.094	3.380	1.580
1974-75	Public	-	-2.127	-4.188	5.957	-40.226	- 8.715	-37.087	-	2.799	0.933
	Private	-	-0.869	-1.706	2.515	- .324	4.609	-	1.707	- .425	0.223
	Total	2.886	- .558	-0.715	-1.342	-13.845	- 6.048	-31.179	57.450	- .381	-1.810
1975-76	Public	2.886	- .894	- .693	7.052	-33.845	- 7.048	-31.179	1.011	2.616	2.748
	Private	-	- .893	-2.010	-25.093	- 0.687	3.677	-	5.112	-2.490	-.393
	Total	-	-1.054	-4.143	4.611	-15.179	- 8.402	-37.087	75.002	0.094	2.099
1976-77	Public	-2.009	-1.847	.835	5.383	-27.997	- 4.867	-26.130	-2.324	1.979	2.434
	Private	-	1.261	- .324	-20.527	.599	7.008	-	- .875	- .450	1.051
	Total	-2.009	.825	.815	- 1.389	- 9.914	- 4.54	-21.522	43.892	.688	1.724

Contd...

TABLE - 4.2 (Contd.)

ANNUAL COMPOUND GROWTH RATE OF EMPLOYMENT BY ACTIVITIES IN DELHI DURING 1971-81

Year	Activity Sector	Agri-culture	Manufac-turing	Electri-city, Gas Water	Construc-tion	Wholesale and Retail Trade	Transport Storage & Communi-cation	Finance, Insurance & Business Services	Community and per-sonal Services	Total Employment (3+4+5+6)	Basic Employ-ment
1	2	3	4	5	6	7	8	9	10	11	12
1977-78	Public	-2.527	- .417	1.359	3.994	-23.614	- 3.809	-22.344	-1.071	1.998	2.359
	Private	-	1.427	-2.018	-17.611	.885	7.318	- 3.256	.065	- .053	1.274
	Total	-2.527	1.164	1.306	1.661	-8.106	- 3.510	-18.486	36.962	.898	1.799
1978-79	Public	-7.488	- .619	1.606	3.987	-20.067	- 2.676	-17.898	- .014	2.335	2.255
	Private	-	2.073	.080	-15.703	1.296	6.805	4.120	.155	.741	1.801
	Total	-7.488	1.699	1.581	-1.044	-6.552	- 2.422	-14.575	32.178	1.332	2.188
1979-80	Public	-8.968	- .281	1.341	4.762	-17.626	- 2.132	-15.687	0.320	2.336	2.416
	Private	-	- .983	.491	-14.406	1.099	6.596	2.738	.054	-2.056	.099
	Total	-8.960	- .876	1.327	.079	-5.807	- 1.895	-12.769	28.343	- .165	1.750
1980-81	Public	-7.445	3.449	1.641	4.160	-15.952	-1.807	-13.532	1.306	2.676	3.158
	Private	-	1.460	5.684	-12.630	-2.166	9.555	1.765	.297	.445	1.073
	Total	-7.445	1.782	1.725	.022	7.629	- 1.441	-11.908	25.908	1.548	2.251

TABLE - 4.3

MULTIPLIER AND ELASTICITY OF EMPLOYMENT BY ACTIVITIES
IN PUBLIC SECTOR IN DELHI DURING 1971-81.

Sl. No.	Activity	LINEAR			COBB-DOUGLAS		
		Intercept ($x10^6$)	Coefficient of Multiplier		Constant	Coefficient of Elasticity	$\bar{R}^2$
1.	Agriculture	.5973	21,2096 (10.37)	.2414	15.39	-2580*** (.04)	.8705
2.	Manufacturing	.6083	1.2928 (.6.05)	-.1055	13.23	.0115 (.16)	-.1105
3.	Electricity, Gas and Water	.2837	12.6622** (4.30)	.4338	8.24	.5000** (.19)	.3713
4.	Construction	.3410	12.2199*** (1.93)	.7961	8.89	.4428*** (.07)	.7909
5.	Wholesale & Retail Trade	.6698	-3.2473*** (.96)	.5105	13.90	-.0615 (.02)	.3083
6.	Transport, Storage and Communication	.5816	.4253 (1.15)	-.0947	12.09	.1081 (.22)	-.0816
7.	Finance, Insurance and Business Services	.6636	-.3367** (.11)	.4421	13.91	-.0507 (.02)	.3999
8.	Community and Personal Services	.5819	.2823*** (.07)	.5972	.61	1.024** (.43)	.4374
	Total Employment	.0349	1.2844*** (.85)	.9824	.83	.9595*** (.02)	.9971
	Basic (1+2+3+4)	.1444	7.0645*** (.97)	.8654	4.69	.7774*** (.10)	.855

Note: ** Significant at 5 percent level of probability.
*** Significant at 1 percent level of probability.

TABLE - 4.4

MULTIPLIER AND ELASTICITY OF EMPLOYMENT BY ACTIVITIES
IN PRIVATE SECTOR IN DELHI DURING 1971-81

Sl.	Activity	LINEAR			COBB-DOUGLAS		
		Intercept ($x10^6$)	Coefficient of Multiplier	$\bar{R}^2$	Constant	Coefficient of Elasticity	$\bar{R}^2$
1.	Agriculture	NA	NA	NA	NA	NA	NA
2.	Manufacturing	.3322	3.34 (1.84)	.1857	8.16	.4552 (.26)	.2674
3.	Electricity, Gas and Water	.4994	269.87*** (1.08)	.3417	11.85	.2431** (.11)	.2989
4.	Construction	.6822	-7.8763** (2.47)	.4776	14.90	-.0859*** (.03)	.5286
5.	Wholesale & Retail Trade	.6696	-1.6099 (7.49)	-.215	14.14	-.0784 (.28)	-.1016
6.	Transport, Storage & Communication	.4862	35.2976*** (3.78)	.8958	11.28	.2507*** (.03)	.0989
7.	Finance, Insurance & Business Services	.5946	6.006*** (1.24)	.6896	6.02	.7826 (.36)	.4833
8.	Community and Personal Services	.6824	-1.6103 (5.57)	-.1009	14.07	-.0692 (.31)	-.1050
	Total Employment	.0194	3.662*** (.50)	.8389	1.74	.9660*** (.14)	.2257
	Basic (1+2+3+4)	.5585	.7373 (2.38)	-.0995	12.55	.0696 (.35)	-.1064

Note: ** Significant at 5 percent level of probability.
*** Significant at 1 percent level of probability.

TABLE - 4.5

MULTIPLIER AND ELASTICITY OF TOTAL EMPLOYMENT BY ACTIITIES
IN DELHI DURING 1971-81.

Sl.	Activity	LINEAR			COBB-DOUGLAS		
		Intercept ($x10^6$)	Coefficient of Multiplier	$\bar{R}^2$	Constant	Coefficient of Elasticity	$\bar{R}^2$
1.	Agriculture	.597316	21.2096 (10.37)	.2414	15.39	-.2580*** (.04)	.8705
2.	Manufacturing	.328064	2.8639 (1.69)	.1558	8.07	.4569 (.29)	.1249
3.	Electricity, Gas and Water	.280566	12.5539** (4.14)	.4502	8.13	.5101 (.18)	.3910
4.	Construction	.633776	- .1463 (5.95)	-.1110	13.24	.0108 (.30)	-.1109
5.	Wholesale & Retail Trade	.756413	- .3.2880*** (.93)	.5493	15.55	-.2102*** (.05)	.5507
6.	Transport, Storage & Communication	.547493	.7039 (1.11)	-.0639	11.49	.1590 (.213)	-.0468
7.	Finance, Insurance & Business Services	.665602	- .3376** (.12)	.3985	13.91	-.0502*** (.02)	-.2974
8.	Community & Personal Services	.573120	.28** (.07)	.5896	12.73	.0529*** (.01)	.5838
9.	Basic (1+2+3+4)	.053009	3.4973** (1.20)	.4275	2.28	.9219 (.32)	.4190

Note: ** Significant at 5 percent level of probability.
*** Significant at 1 percent level of probability.

CHAPTER - 5

AREA PROFILE

The area of study, besides urban Delhi includes the other three important towns of Ghaziabad in Uttar Pradesh, Faridabad-Ballabhgarh and Gurgaon in Haryana. Delhi has grown from an imperial city to the capital of a welfare state in 1947 and soon after acquired the status of an international city. As a consequence, a large number of foreign missionaries and embassies, national and international research organisations, business houses and expanding network of public undertakings have had their distinct impact on the growth of Delhi metropolis which has grown from 14.37 lakhs in 1951 to 57.68 lakhs in 1981 and the working population has increased from 5.11 lakhs to 18.53 lakhs during the corresponding period. To cope with the demand of added essential functions, there has been tremendous growth in government offices (both central and local) and employment to manage the affairs of a growing metropolis. But a spectacular growth of population in Delhi due to a large influx of migrants (constituting more than 50 percent of population), increasing concentration of economic opportunities and the territorial expansion of Delhi caused by suburbanisation absorbing a large number of villages into urban limits, all have further accentuated the growth of Delhi metropolis. It was, therefore, felt necessary keeping in view the recommendations of Delhi master plan to plan the capital city with a larger area in the context of a national capital region (NCR) consisting of several districts contiguous to Delhi.

National Capital Region

The National Capital Region includes the union territory of Delhi, Meerut, Bulandshahr and Ghaziabad districts in Uttar Pradesh; three districts of Gurgaon, Rohtak and Karnal in Haryana and five Tehsils of Alwar district in Rajasthan. The delineated NCR had an area of 30,000 sq.km. and a population of 14 millions, as of 1971, which has increased to 19 millions, as of 1981. The statewise distribution of NCR population (Table -- 5.1) indicates that the component of overall urban popultion was about 47 percent in 1981. The contribution of Delhi was 57.68 lakhs, of Uttar Pradesh 19.49 lakhs, of Haryana 11.99 lakhs and that of Rajasthan 1.74 lakhs.

TABLE -5.1

DISTRIBUTION OF POPULATION IN THE NATIONAL CAPITAL REGION

(figures in lakhs)

State	1971		1981	
	Total	Urban	Total	Urban
Delhi	40.66	36.47	62.20	57.68
Uttar Pradesh	54.40	10.93	69.69	19.49
Haryana	35.46	6.06	48.68	11.99
Rajasthan	8.19	1.11	9.53	1.74
	138.71	54.57	190.09	90.90

As regards the share of urban working force in the national capital region excluding Delhi, it has increased from 5.09 lakhs in 1971 to 10.23 lakhs in 1981. Of the total workforce, 22.37 per cent was employed in manufacturing other than household, 20.55 per cent in trade

and commerce, 28.93 per cent in other service, 9 per cent in transport and communication, 3.93 per cent in construction, 4.73 per cent in household industries, and over 10 per cent in agricultural pursuits. The share of tertiary activities which was about 60 per cent in 1971 has increased to 72 per cent during 1981. This indicates that in the economy of national capital region, trade and commerce, transport and communication and other services have had a predominant role to play.

Population and Economy of the Study Area

The healthy economic base of the study area of urban Delhi, Ghaziabad, Faridabad - Ballabhgarh and Gurgaon has been instrumental in the growth of their population, area, working force and density patterns (Table - 5.2). In Delhi, increase in population as well as working force has been very significant. The land area of Delhi has increased @ 0.56 per cent per annum as against 5.71 per cent in population exerting more pressure on the density of population from 8,172 persons per sq. km. in 1971 to 12,157 persons per sq. km. in 1981.

TABLE - 5.2

AVERAGE ANNUAL GROWTH RATE OF POPULATION, LAND AREA, DENSITY AND WORKERS DURING 1971-81.

Town/City	Population	Workers	Land Area	Density (per sq. km.)		Percentage increase in density
				1971	1981	
Delhi	5.71	6.32	0.56	8,172	12,157	4.8
Ghaziabad	12.48	12.41	8.25	3,571	4,400	2.3
Faridabad	16.94	17.82	59.26	7,980	1,855	- 7.6
Ballabhgarh						
Gurgaon	5.59	7.50	2.13	3,728	5,426	4.5

In Ghaziabad, the population has increased @ 12.48 per cent and land area @ 8.25 per cent per annum. The density has also increased from 3,571 persons per sq. km. in 1971 to 4,400 persons per sp. km. in 1981. But in Faridabad - Ballabhgarh, the population has increased @ 16.94 per cent as against an abnormal increase in the land area @ 59.26 per cent per annum. The spectacular growth in the area has been due to the inclusion of 27 revenue villages within the urban agglomeration increasing the area and status of the township. As a consequence, the density has gone down from 7,280 persons per sp. km. in 1971 to 1,855 persons per sq. km. in 1981.

In the case of Gurgaon, the population has increased @ 7.64 percent and the area @ 2.13 per cent per annum. The Density has increased from 3,728 persons per sq. km. in 1971 to 5,426 persons per sq. km. in 1981.

A look at the Table - 5.2 indicates that the other three selected towns of Ghaziabad, Faridabad - Ballabhgarh and Gurgaon have witnessed a tremendous increase in Urban population and the workers even more than Delhi, possibly because of healthy economic base and rapid urbanisation of these towns. It suggests that the economy of these towns is 'open' and there are also 'open' employment opportunities to lure more migration of population without disrupting the cost structure of providing basic services and amenities in these towns.

Impact of Population growth on Urban Space Requirements

In order to estimate the impact of population growth on urban space requirement, the regression equations of area on population have been obtained for each town under the study for the year 1971 and 1981, as given below:

Delhi	1971	$Y = 4.08 + 22.3^{*}X$	... (1)
	1981	$Y = 3.88 + 22.5^{*}X$	... (2)
Ghaziabad	1971	$Y = 1.26 + 100^{*}X$	... (3)
	1981	$Y = -2.06 + 331^{*}X$	... (4)
Faridabad-Ballabhgarh	1971	$Y = 1.58 + 35^{*}X$	... (5)
	1981	$Y = 2.76 + 62^{*}X$	... (6)
Gurgaon	1971	$Y = 0.3 + 208^{*}X$	... (7)
	1981	$Y = -0.8 + 301^{*}X$	... (8)

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* Significant at 1 per cent level of probability.

In all the eight equations given above, unit of area has been taken in square metres. The coefficient of Xs' denote increase in area for a unit increase in population. For example in equation (1) the coefficient, 22.3, of X implies that with an increase in population by 1 unit, the area needed to accommodate one additional person at the existing level of services and infrastructure, would be 22.3 sq. metres of land, and so on. The more value of the coefficient of 'X' for Ghaziabad and Gurgaon suggest that for accomodating one additional person, more land is available because of high land-man ratio in these towns, but it is not so in the case of Delhi.

Occupational Structure

The distribution of workers in nine census industrial categories (vide table - 5.3) gives the occupational structure of the towns for the study area. In Delhi, about 38 per ent of the working population is engaged in personal and community services followed by manufacturing including household industries (23 per cent), trade and commerce (22 per cent), transport and communication (10 per cent) and construction (5.80

TABLE - 5.3

PERCENTAGE DISTRIBUTION OF WORKERS BY INDUSTRIAL ECONOMIC ACTIVITY IN SELECTED TOWNS AND CITIES DURING 1971 AND 1981

S. No.	Activity	Delhi		Faridabad-Ballabhgarh		Gurgaon		Ghaziabad	
		1971	1981	1971	1981	1971	1981	1971	1981
I.	Cultivation	0.46	0.24	1.26	2.98	1.91	2.27	2.09	3.80
II.	Agricultural labour, livestock forestry, fishing and hunting	0.32	0.18	1.63	1.15	1.31	1.26	1.64	2.69
III.	Plantation and allied activities	0.81	0.83	0.45	0.44	0.44	0.42	0.57	0.58
IV.	Mining and Quarrying	0.01	0.01	0.03	0.02	0.01	0.01	0.06	0.07
V.	Manufacturing and Processing (a+b)	24.16	23.07	54.43	54.67	15.78	18.36	34.43	36.44
VI.	Construction	5.49	5.80	2.65	2.58	3.64	3.43	4.38	4.27
VII.	Trade and Commerce	21.91	21.86	13.12	12.66	20.15	19.70	18.57	18.00
VIII.	Transport, storage and Communication	9.75	9.98	4.05	3.82	9.60	9.36	12.57	11.47
IX.	Other Services	37.09	38.03	22.38	21.68	47.16	45.19	25.69	22.68

per cent). While in Gurgaon, 45 per cent workers are engaged in personal services, 19.70 percent in trade and commerce, 18.36 per cent in manufacturing and household industries, 9.36 per cent in transport and communication.

As compared to Delhi and Gurgaon, the working population is maximum in Faridabad-Ballabhgarh complex and Ghaziabad. By virtue of being manufacturing and industrial centres, these towns shared about 55 percent and 36 per cent of workers, respectively. In so far as the contribution of other services is concerned, there has been an increase of almost 1 per cent of workers engaged in other services in Delhi, but the same has declined by 2.5 percent in all other towns during 1971 and 1981. Likewise, the proportion of workers engaged in manufacturing and other household industries has increased almost by 2 percent in these towns, while it has gone down by 1 percent in Delhi.

It is worthwhile noting that there has been a decline in the proportion of workers engaged in the trade and commerce and transport and communication in all the four towns and cities during 1971-81. This result has an important bearing on the closer association of these two activities which are inter-dependent.

Area Profile Based on Household Survey

In order to study the socio-economic structure and housing and environmental conditions including services and amenities available to public employees at the household level, household survey of the sampled employees was conducted in selected towns and cities of the national capital region. The primary survey was conduted through the structured questionnaire and each sample household was interviewed to know the job

characteristics, family size and struture, migration and mobility rates, tenureship of present accommodation, availability of various facilities and amenities both at the household and neighbourhood levels, distance of the place of work and the mode of transport used. In addition, the information on household expenditure on various items of 'services' and their relation with income and savings made at source were also probed deeply.

Job Characteristics

The employees were grouped in two categories viz. (i) technical and (ii) non-tehnical on the basis of their nature of work. Further, the employees were also grouped into four categories 'A', 'B', 'C', and 'D' as per classification made by the Government of India (see Chapter - 2 on Methodology and Research Design). As it is evident from the Table - 5.4, more than 75 perent of the total sample employees belonged to the non-tehnical category in all the four towns and cities. Owing to a less percentage of job created in Gurgaon, this percentage has increased upto hundred followed by Faridabad (78.79 per cent) and Ghaziabad (78.26 percent).

More than 80 per cent of group 'C' employees are non-technical in all the four places, whereas, the proportion in other groups varies from one town to another. In Delhi, the proportion of non-technical employees is greater in almost all the four groups, maximum being in group 'C' (86.21 per cent) followed by group 'D' (72.92 percent) group 'B' (55.17 percent) and group 'A' (53.83 percent). As compared to Delhi, the number of non-technical employees in Ghaziabad is less in the group 'A' (25 percent), while equally distributed in group 'B'. The

TABLE - 5.4

GROUPWISE PERCENTAGE DISTRIBUTION OF TECHNICAL AND NON-TECNICAL EMPLOYEES

Town/City	Nature of Job	Category of Employees Group				Total
		A	B	C	D	
Delhi	1. Technical	30.70	11.40	35.09	22.81	100.00
		(46.67)	(44.83)	(13.79)	(27.08)	(23.27)
	2. Non-Technical	10.84	4.26	66.48	18.62	100.00
		(53.33)	(55.17)	(86.21)	(72.92)	(76.73)
	Total	15.31	5.92	39.18	19.59	100.00
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
Ghaziabad	1. Technical	60.00	40.00	-	-	100.00
		(75.00)	(50.00)			(21.74)
	2. Non-Technical	5.56	11.10	55.56	27.78	100.00
		(25.00)	(50.00)	(100.00	(100.00)	(78.00)
	Total	17.39	17.39	43.98	21.74	100.00
		(100.00)	(100.00)	(100.00	(100.00)	(100.00)
Faridabad-	1. Technical	14.29	28.57	57.14	-	100.00
		(33.33)	(66.67)	(16.67)		(21.21)
Ballabhgarh	2. Non-Technical	7.69	3.85	76.92	11.54	100.00
		(66.67)	(33.33)	(83.33)	(100.00)	(78.79)
	Total	9.09	9.09	72.93	9.09	100.00
		(100.00	(100.00)	(100.00)	(100.00)	(100.00
Gurgaon	1. Technical	-	-	-	-	-
	2. Non-Technical	14.29	28.57	42.86	14.28	100.00
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
	Total	14.29	28.57	42.86	14.28	100.00
		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

Note: Figures in parentheses refer to percentage distribution of technical and non-technical in each category.

group 'C' and 'D' employees of Ghaziabad, all the four group employees of Gurgaon and the group 'D' employees of Faridabad-Ballabhgarh complex are non-technical.

Of the total employees interviewed, under the household survey, the maximum number are from the group 'C' employees followed by group 'D', 'A' and 'B' with the exception of Gurgaon, where the maximum number fall, in the group 'C', followed by groups 'B', 'A' and 'D'.

Job Change and Mobility Rate

The phenomenon of job shift of employees from one job to another has been worked out on the basis of how many times an employee has changed his job over a period of time i.e. during the last 10 years. It was found out that in Delhi about 48 percent employees did not change their jobs during the last ten years, while 28 percent changed once, 15 percent twice, and about 9 percent thrice and more. As compared to Delhi, job shifts in Ghaziabad and Faridabad-Ballahgarh complex have been relatively low but in Gurgaon, it has been very high (Table - 5.5).

To substantiate the above facts, the mobility rate of employees in each group has been computed by dividing number of employees who have changed their jobs during the last ten years by the total number of employees. This gives the mean number of job shifts or 'mobility rate'.

Horizontal Mobility

A look at the table - 5.6 reveals the highest mobility rate in Gurgaon (57.1 per cent) followed by Delhi (52 per cent), Faridabad-Ballabhgarh Complex (30.3 per cent) and Ghaziabad (26.1 per cent). See Fig. 5(a).

MOBILITY RATE OF VARIOUS GROUPS OF EMPLOYEES DURING 1971-81

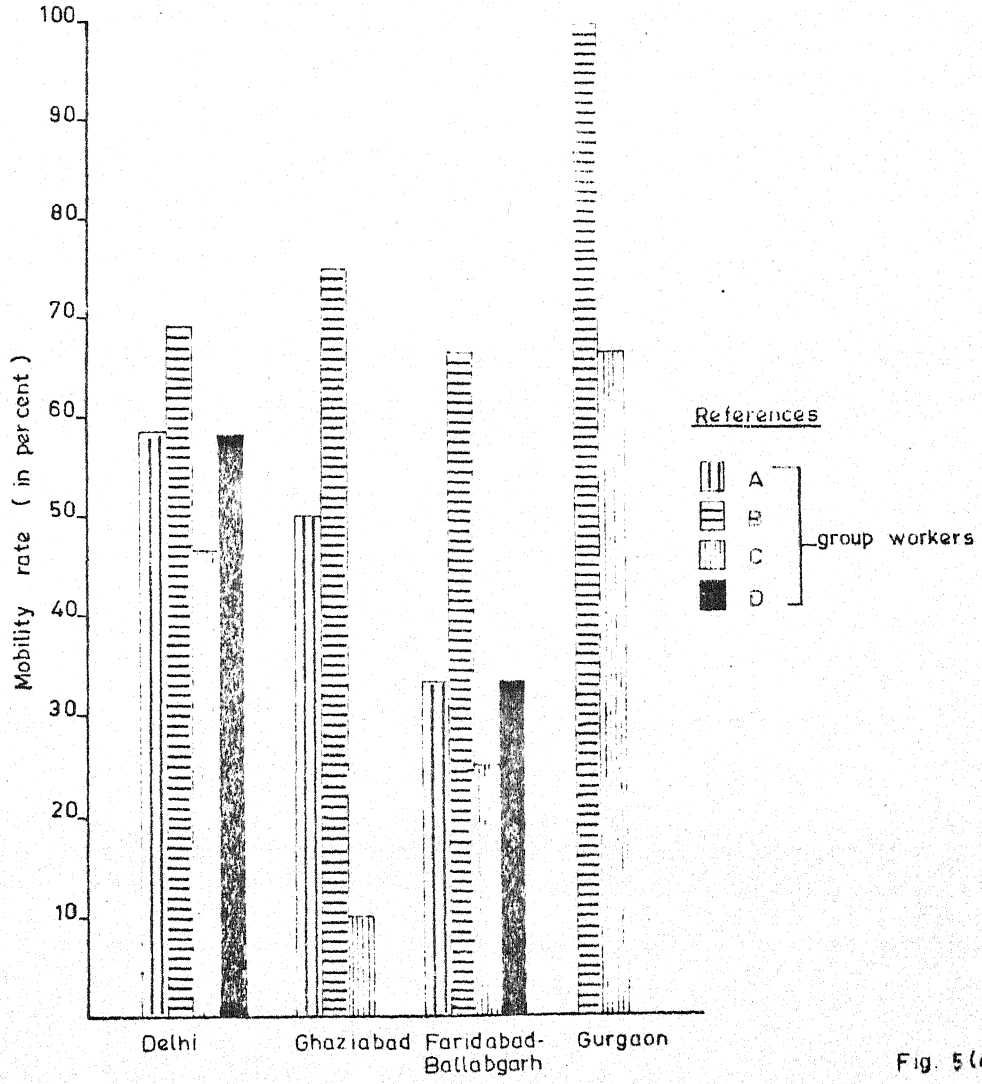

Fig. 5(a)

TABLE - 5.5

GROUPWISE PERCENTAGE DISTRIBUTION OF JOB SHIFTS AS OF 1971-81

Town/City	Group	Change of Job			
		No change	Once	Twice	Thrice & above
Delhi	A	41.33	29.33	16.00	13.34
	B	31.03	37.93	13.79	17.24
	C	53.45	14.48	14.83	7.24
	D	47.67	35.43	14.58	8.34
	Total	47.96	28.16	14.90	8.98
Faridabad-Ballabhgarh Complex	A	66.67	-	33.33	-
	C	33.33	66.67	-	-
	D	66.67	33.33	-	-
	Total	69.70	24.24	6.06	-
Gurgaon	A	100.00	-	-	-
	B	-	50.00	-	50.00
	C	33.33	33.33	33.33	-
	D	100.00	-	-	-
	Total	42.86	28.57	-	28.57
Ghaziabad	A	50.00	25.00	25.00	-
	B	25.00	75.00	-	-
	C	90.00	-	-	10.00
	D	100.00	-	-	-
	Total	73.91	17.39	4.35	4.35

A groupwise analysis of the horizontal mobility rate indicates the highest mobility rate among the group 'B' employees in all the four-towns ranging from 100 per cent in Gurgaon to 66.6 per cent in Faridabad-Ballabhgarh complex. With the exception of Gurgaon, the group 'A' employees has the second highest mobility rate in all the towns, group 'D' ranked third and group 'C' fourth.

TABLE - 5.6

MOBILITY RATE OF PUBLIC EMPLOYMENT IN THE SELECTED TOWNS AND CITIES AS OF 1971-81

Group	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon
A	58.7	50.0	33.3	-
B	69.0	75.0	66.6	100.0
C	46.6	10.0	25.0	56.0
D	58.3	-	33.3	-
Total	52.0	26.1	33.3	57.1

A comparative analysis of the mobility rate between central government and public sector undertakings reveals that the later has 54.55 percent mobility rate than the former having 48.1 percent. The mobility rate of group 'A' and 'B' employees of the central government had the highest mobility of 74 and 82 percent, respectively. While in the public undertakings, the corresponding mobility was 52 and 50 percent. A very significant result has been observed for the group 'C' employees in public undertakings which had a comparatively higher mobility rate of 55.5 percent as compared to 40 percent for the central government, obviously because of more job avenues available with the public undertakings. But the mobility rate for group 'D' employees has been equal in both the types of estalishments ranging between 58 to 61 percent.

Vertical Mobility

In so far as the vertical mobility (see Table 5.7) is concerned (i.e. mobility within the place of work), there has been no significant change in central government and public undertakings in both the towns

of Faridabad-Ballabhgarh Complex and Gurgaon. In Faridabad, only 33 percent employees in group 'A' and 8 percent in group 'B' have changed

TABLE - 5.7

GROUPWISE PERCENTAGE DISTRIBUTION OF JOB CHANGE IN DELHI, AS OF 1971-81

Delhi	Emloyees	Change of job at work place				
	Group	None	Once	Twice	Thrice times	Four & Above
Central Government	A	26.09	60.87	13.04	-	-
	B	23.53	47.06	23.53	5.88	0.68
	C	66.90	20.69	8.97	2.76	0.68
	D	39.12	39.13	8.70	8.70	4.35
	Total	55.77	29.32	10.58	3.37	0.06
Public Undertakings	A	53.85	30.77	7.69	5.77	1.92
	B	50.00	33.33	-	16.67	-
	C	61.38	16.55	15.86	6.21	-
	D	69.86	20.55	8.22	1.37	-
	Total	61.70	20.92	11.72	5.31	0.35
Total	A	45.33	40.00	9.33	4.00	1.34
	B	34.48	41.38	13.79	10.35	-
	C	64.14	18.62	12.41	4.14	0.69
	D	62.50	25.00	8.33	3.13	1.04
	Total	59.18	24.49	11.22	4.29	0.82

their jobs at their working place, while in Ghaziabad about 25 per cent have changed their jobs in group 'B'. But in Delhi more than 40 per cent employees of both group 'A' and 'B' have once changed their jobs and about 94 percent twice or more. The tendency of job shift in central government has been more than public undertakings, particularly among group 'A' and 'B' employees.

These trends are further supported by the fact that the mobility rate of group 'B' employees has been the highest in Delhi (table - 5.8) both in central government (76.47 percent) as well as in the public undertakings (50 percent). The second highest mobility rate was noticed for group 'A' employees of both the sectors followed by group 'D' and 'C' employees of the central government and the group 'C' and 'D' employees of public undertakings.

TABLE - 5.8

GROUPWISE PERCENTAGE DISTRIBUTION OF MOBILITY RATE IN CENTRAL GOVERNMENT AND PUBLIC UNDERTAKINGS IN DELHI 1971-81

Emloyees Group	Central Covernment	Public Undertakings	Total
A	73.91	46.15	54.66
B	76.47	50.00	65.51
C	33.10	38.62	35.86
D	60.87	30.13	37.5
Total	44.23	38.29	40.81

One of the obvious conclusion that could be drawn from the foregoing analysis is that the mobility rate of technical employees in the matters of job-changes has been more as compared to non-technical employees.

Migration

The employees working both in central government and public undertakings either belonged to the same place of work or migrated from rural or urban areas. In order to know their place of origin, the data

given in Table-5.9 reveals that with the exception of Ghaziabad about more than 50 percent employees were recruited locally i.e. from the place itself during 1971-81 (see Fig. 5(b). The highest proportion of

TABLE - 5.9

GROUPWISE MIGRATION STATUS OF EMPLOYEES IN THE SELECTED TOWNS AND CITIES, AS OF 1971-81

Place	Employees group group	Migration from		No migration (orgin-place of work)
		Rural	Urban	
Delhi	A	9.33	48.00	42.67
	B	13.79	44.83	41.38
	C	24.14	20.34	55.52
	D	50.00	41.17	45.83
	Total	26.33	22.86	50.82
Ghaziabad	A	50.00	25.00	25.00
	B	25.00	50.00	25.00
	C	50.00	40.00	10.00
	D	40.00	-	60.00
	Total	43.48	30.43	26.08
Faridabad Ballabhgarh	A	3.33	46.42	49.00
	B	10.25	30.75	66.67
	C	8.33	20.00	71.67
	D	100.00	-	-
	Total	21.00	19.21	59.79
Gurgaon	A	-	-	-
	B	-	-	-
	C	33.33	-	66.67
	D	-	-	-
	Total	14.29	-	85.71

employees recruited locally was in Gurgaon, 85.71 percent and the minimum in Ghaziabad, 26.09 percent. In Delhi, alone, about 48 percent ingroup 'A' and 45 percent in Group 'B' are urban migrants but their

proportion is less in group 'C' (20.34 percent) and group 'D' (4.17 percent).

Likewise, in Faridabad-Ballabhgarh, the proportion of employees recruited from urban areas in group 'A' is 46.42 percent, group 'B' 30.75 percent and group 'C', 20 percent. But the group 'D' has 100 percent employees of rural origin. In Ghaziabad, 25 percent workers in group 'A' are urban migrants and 50 percent rural migrants which is equal to the proportion of urban migrants in group 'B'. About 22 percent employees in Faridabad - Ballabhgarh migrated from rural areas. In Gurgaon, there has been no migration from urban areas for the simple reason of lack of proper representation of employees in each category.

Sex-composition

Of the total workers, 73 percent are males and 27 percent females in Delhi. In case of other towns, the position is slightly different ranging between 85 to 87 percent for males and 13 to 15 percent for females. With the exception of Delhi, the female participation in these towns is very insignificant, which is quite evident from Table - 5.10. The female participation in Delhi, Ghaziabad and Faridabad - Ballabhgarh Complex is quite significant for Group-C employees and in Gurgaon for Group-B employees.

TABLE - 5.10

SEX COMPOSITION OF EMPLOYEES, AS OF 1980-81

Place	Group/Sex	Male	Female
	A	85.33	19.67
	B	89.66	10.34
Delhi	C	65.52	34.48
	D	82.29	17.71
	Total	73.06	26.74
	A	100.00	-
	B	100.00	-
Faridabad	C	79.17	20.83
Ballabhgarh	D	100.00	-
	Total	84.85	15.15
	A	100.00	-
	B	50.00	50.00
Gurgaon	C	100.00	-
	D	100.00	-
	Total	85.71	14.29
	A	100.00	-
	B	100.00	-
Ghaziabad	C	70.00	30.00
	D	100.00	-
	Total	86.96	13.04

Socio-economic Structure

Household Structure

In order to know the social characteristics of the sample employees household, the data on family size, income of the household, the level of education, age and sex structure, etc. were collected. The average family size of central government and public undertaking employees is 4.2 in Delhi, 4.3 in Ghaziabad, 3.8 in Faridabad-Ballabhgarh and 3.7 in Gurgaon. The family size in case of Faridabad-Ballabhgarh is lower as compared to Delhi and Ghaziabad (Table - 5.11)

TABLE - 5.11

FAMILY SIZE OF SAMPLE HOUSEHOLDS IN THE SELECTED TOWNS AND CITIES, AS OF 1980-81

Town/City	Total number of families	Total family members	Average family size
Delhi	489	2046	4.2
Ghaziabad	23	98	4.3
Faridabad-Ballabhgarh	33	125	3.8
Gurgaon	7	26	3.7

A look at the Table - 5.12 reveals the dominance of single member households in Delhi, Ghaziabad, whereas, four member households are dominating in Faridabad-Ballabhgarh, Ghaziabad. But it is Gurgaon only where the three member households have a share of 42.86 percent, otherwise, there is a uniformity in the distribution of family in various size-groups.

TABLE - 5.12

PERCENTAGE DISTRIBUTION OF FAMILIES IN VARIOUS SIZE GROUPS, AS OF 1980-81

Town/ City	Single Member	Two Member	Three Member	Four Member	Five Member	Six Member	Seven & Above
Delhi	19.18	6.94	14.69	13.47	16.94	13.06	15.72
Ghaziabad	21.74	-	8.70	21.74	21.74	13.03	13.05
Faridabad Ballabhgarh	9.09	15.15	6.06	39.34	21.21	6.06	3.03
Gurgaon	14.29	6.06	42.86	14.24	14.29	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Age Structure

As regards the age structure, about three-fourth family households members are in the age-group 15-59, between 21 to 27 percent in the age-group 0-14, and about 5 percent in the age-group 60 years and above (Table - 5.13).

TABLE - 5.13

PERCENTAGE DISTRIBUTION OF HOUSEHOLD MEMBERS BY AGE-GROUP, AS OF 1980-81

Town/City	Age Group Structure		
	0-14	15-59	60+
Delhi	21.26	73.72	5.02
Ghaziabad	25.52	69.38	5.10
Faridabad-Ballabhgarh	24.00	71.20	4.80
Gurgaon	26.92	73.08	-

Household and Workers

As regards, the ratio of workers of non-workers in the households is concerned, the family has been divided into five categories, namely non-school going children, students, unemployed, partially employed and fully employed as given in the Table - 5.14.

It is remarkable to note that the proportion of fully employed person varies from 28.57 percent in Ghaziabad to 46 percent in Gurgaon. The proportion of non-school going childred is between 11-15 percent in all the towns and that of students between 27 to 36 percent. About 30 percent people are unemployed in Ghaziabad, while this proportion is lower in Delhi 14.66 percent, Faridabad-Ballabhgarh 10 percent and

TABLE - 5.14

PERCENTAGE DISTRIBUTION OF WORKERS AND NON-WORKERS MEMBERS OF THE HOUSEHOLD, AS OF 1980-81

Town/City	Non-school going children	Students	Unemployed	Partially Employed	Fully Employed
Delhi	13.14	30.99	14.66	1.96	38.95
Ghaziabad	11.22	29.59	29.59	1.02	28.57
Faridabad-Ballabhgarh	12.00	36.00	10.00	1.60	40.00
Gurgaon	15.38	26.92	11.54	-	46.15

Gurgaon 11.54 percent. But this category of unemployed also includes dependent non-workers.

Family Size and Income

To know the relation between the distribution of family size and income, the data on income, was arranged in various frequency groups for Delhi, as the same was not significant for other selected towns. (Table 5.15) It appears from the table that the majority of single member households in Delhi is in the lowest income-range i.e. Rs. 500 and below or in the income group 501-1000. The family size increases with the increase in income. The obvious conclusion that could be drawn from this analysis is that it is the income which determines the family affordability rate in almost all urban settings.

TABLE - 5.15

PERCENTAGE DISTRIBUTION OF FAMILY HOUSEHOLDS IN VARIOUS INCOME-GROUPS IN DELHI, AS OF 1980-81

Income-group (Rs.monthly)	Single	Two	Three	Four	Five	Six	Seven & above
Below 500	46.67	3.33	13.33	20.00	10.00	6.67	-
501-1000	38.61	5.70	14.56	11.39	14.56	9.49	5.70
1001-1250	13.64	6.82	9.09	4.55	13.64	22.73	29.54
1251-1500	7.69	3.85	23.08	19.23	7.69	7.69	30.77
1501-1750	9.68	16.13	9.68	19.35	9.69	19.35	16.13
1751-2000	3.03	6.06	24.24	12.12	18.18	18.18	18.18
2001-2500	9.80	7.84	21.57	15.69	23.53	13.79	7.84
2501-3000	5.56	11.11	5.56	11.11	25.00	13.89	27.78
Above 3000	-	6.17	13.58	16.05	23.46	13.58	27.10

Literacy Rate and Education Level

Educational level is an important and most deciding factor both for an individual or household. The table - 5.16 gives the distribution of households by their levels of education in towns and cities, as of 1980-81. The proportion of illiterate households varies between 12 percent in Gurgaon to 15 percent in Ghaziabad and of literates (with some education) between 5-19 percent. The proportion of literates in Delhi and Faridabad-Ballabhgarh is more or less the same 4 and 5 percent, but in case of Ghaziabad and Gurgaon, it is 13 and 19 percent. Technically qualified households are more in Faridabad-Ballahgarh for the simple reason that it is the manufacturing town. Graduates and post-graduates are uniformly distributed in all the four towns/cities ranging between 27-29 percent. Households with matriculation and intermediate

qualifications are also ranging between 18-21 percent in all the towns/cities excepting Gurgaon, where their share is 11.54 percent.

TABLE - 5.16

PERCENTAGE DISTRIBUTION OF HOUSEHOLD BY LEVELS OF EDUCATION, AS OF 1980-81

Description	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon
Not applied	2.28	-	10.40	-
Illiterate	15.49	16.33	13.60	11.54
Literate (with) some education)	5.18	13.27	4.00	19.23
Primary	9.14	9.18	9.60	15.38
Secondary	14.37	13.27	6.40	15.38
Matric/Intermediate	19.60	17.35	20.80	11.54
Graduate	21.26	22.45	18.40	15.38
Post-graduate	6.55	7.14	5.60	11.54
Technical Degree or Diploma	1.08	1.02	3.20	-

Environmental Conditions

Housing Tenurship

The provision of adequate housng facilities to the employees is one of the important functions of the government or the employer. In Delhi, about 36 percent employees have their own houses, 26 percent are living in rented accommodation and about 18 perent are living in government accommodations. The corresponding ratio for Ghaziabad is 13 percent, 17 percent and 61 percent, while that of Faridabad 42 percent, 30 percent and 15 percent, respectively. In Gurgaon, however, there is no government hostel or any institutional housing. Employees living either

in their own houses are about 57 percent and in privately rented house 42 percent (Table - 5.17 fig. 5(c)). with the exception of 1.22 percent living in institutional housing, i.e., hostel accommodation, about 19.18 percent employees are sharing accommodation in Delhi. This proportion is relatively lower in Faridabad-Ballabgarh, 12.12 percent and Ghaziabad, 8.70 percent.

TABLE - 5.17

PERCENTAGE DISTRIBUTION OF HOUSE TENURSHIP OF EMPLOYEES, AS OF 1980-81

Town/City	Own House	Privately Rented	Govern-ment House	Government Hostel	Sharing Accommo-dation
Delhi	35.92	25.92	17.76	1.22	19.18
Ghaziabad	13.04	17.39	60.82	-	8.70
Faridabad-Ballabhgarh	42.42	30.30	15.15	-	12.12
Gurgaon	57.42	42.46	-	-	-

In Ghaziabad about 61 percent employees have government accommodation, which is the highest proportion in this category. The existing gap needs to be covered by adequate government housing. The data on sharing accommodation and privately rented accommodation provide a clue to the extent of housing demand.

Living Space

As regards the environmental conditions in terms of available living space, about 42 percent employees are living in one-room tenements in Delhi, 26.09 percent in Ghaziabad, 39.39 percent in

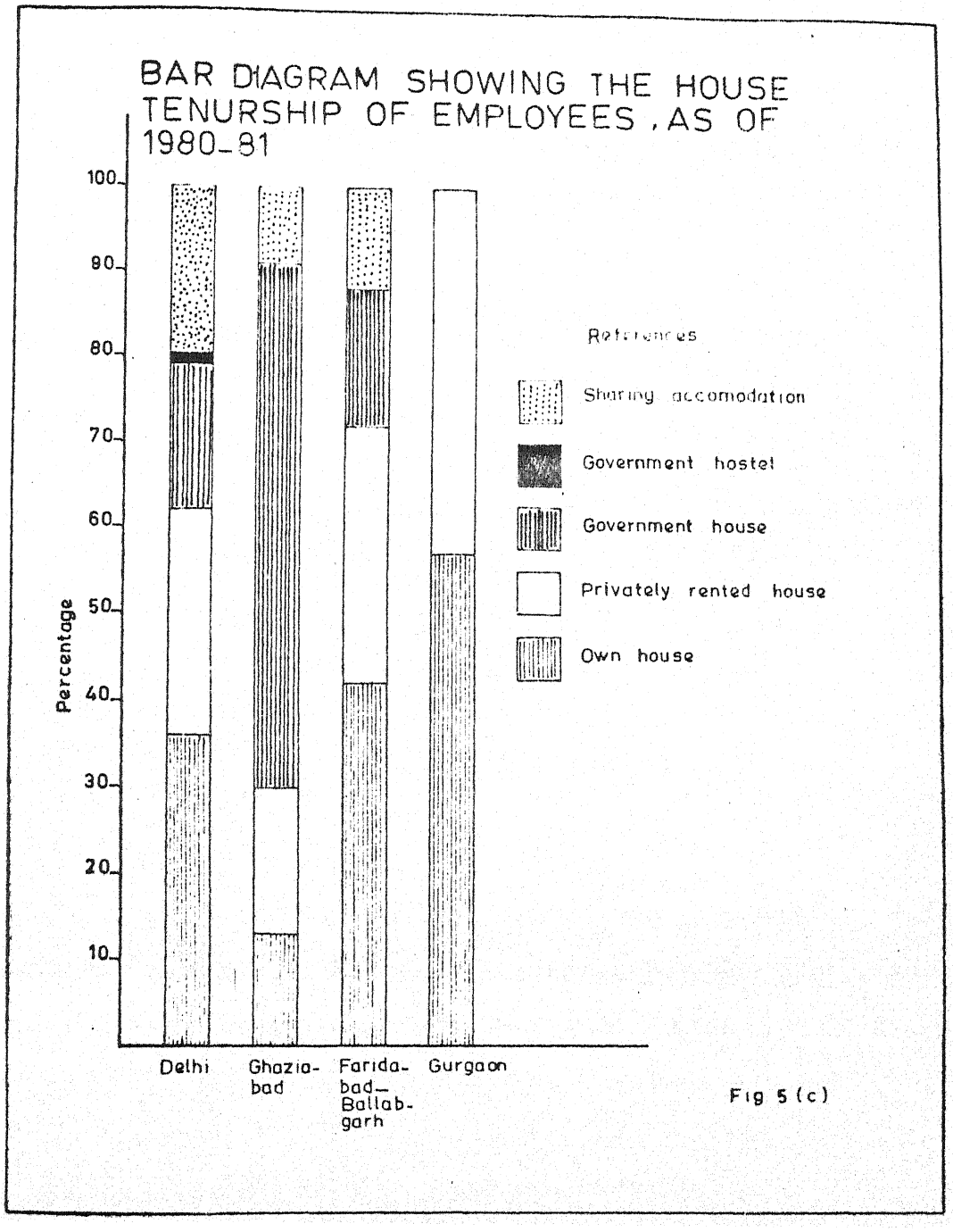
BAR DIAGRAM SHOWING THE HOUSE TENURSHIP OF EMPLOYEES, AS OF 1980-81
Percentage
100
90
80
70
60
50
40
30
20
10
References
Sharing accomodation
Government hostel
Government house
Privately rented house
Own house
Delhi
Ghazia-bad
Farida-bad-Ballab-garh
Gurgaon

Fig 5 (c)

Faridabad - Ballabhgarh and 28.57 percent in Gurgaon. The corresponding figures for two room tenement are 33.47 percent in Delhi, 47.83 percentin Ghaziabad, 15.15 percent in Faridabad-Ballabhgarh and 14.29 percent in Gurgaon. Likewise, employees having four-rooms and above accommodation are 6.43 percent in Delhi, 13.04 percent in Ghaziabad and 9.10 percent in Faridabad-Ballabhgarh (Table 5.18)

TABLE - 5.18

PERCENTAGE DISTRIBUTION OF EMPLOYEES ON THE BASIS OF THE AVAILABILITY OF NUMBER OF ROOMS, AS OF 1980-81

Place	One room	Two room	Three rooms	Four rooms and above
Delhi	42.04	33.47	17.96	6.43
Ghaziabad	26.09	47.83	13.04	13.04
Faridabad-Ballabhgarh	39.39	15.15	36.36	9.10
Gurgaon	28.57	14.29	57.14	-

Income and Living Space

An inquiry into the size of income and the availability of rooms indicates that in Delhi alone, about 47 percent employees are living in one-room tenements simply because their monthly income is less than Rs. 500/- and in this income-range only 3 percent employees are having two-roomed accommodation. The relationship between income and living space as depicted in the Table - 5.19, shows that with the increasing size of income-range, the demand for more living space also rises. There is a corresponding relation between the two.

TABLE - 5.19

DISTRIBUTION OF EMPLOYEES OF DIFFERENT INCOME-GROUPS BY LIVING SPACE IN DELHI, AS OF 1980-81

Income-Range (Rupees)	One Room	Two Rooms	Three Rooms	Four Rooms and above
Less than 500	96.67	3.3	-	-
501-1000	75.95	17.09	2.53	3.30
1001-1250	43.18	40.91	11.36	4.54
1251-1500	42.31	42.31	15.38	-
1501-1700	32.20	51.61	12.90	3.23
1701-2000	15.15	60.61	21.21	-
2001-2500	11.75	66.67	15.67	5.88
2501-3000	8.38	41.67	36.11	13.89
3001 and above	3.70	27.16	53.09	16.09

It is interesting to note that 80 percent of employees earning their income below Rs. 1000, are living in one-room tenements. But this proportion is a decreasing function of the increasing size of income-range. It does not, however, hold true in case of two-roomed, three-roomed and four roomed tenements. Rather the demand for more living space inreases with the inrease in the size of income but their demand for living space seems to be inelastic with respect to income.

Facilities and Services at Household Level

Although housing is one of the basic needs of people, the requirements of water, electricity, wc bath, kitchen, etc. are also the basic essential services needed at the household level. Besides,

neighbourhood shopping centre, lot for children and parks or recreation places are some of the community facilities needed at the neighbourhood level. The availability of these facilities could be seen vide Table - 5.20. It reveals that in Delhi, only 89 percent of group 'A' employees are having separate kitchen, 79.76 percent w.c. bath and 98.67 percent sewerage facilities at the household level. Of course, water and electricity is being enjoyed by all employees in the group, to the extent of 100 percent in all the towns and cities. In Ghaziabad w.c. bath facility is available only to 75 percent employees.

In Faridabad complex and Gurgaon all the five essential services are avilable to group 'A' and 'B' employees at the household level with 100 percent coverage. In Ghaziabad, with the exception of w.c. bath which has 25 percent coverage, the rest of the services are avilable to 75 percent of employees in each category of group 'A' and 'B'. In Delhi, the coverage varies from 86 percent to 100 percent. More variation is discernible in the provision of services to group 'C' employees in the case of Delhi but not so in Ghaziabad where, with the exception of w.c. bath having only 10 percent coverage and kitchen 90 percent, the rest of the services have 100 percent coverage.

With the exception of Gurgaon in all other towns and cities, on an average, 40 percent employees are covered by seperate kitchen, wc bath, piped water electricity and sewearge. This inadequacy and coverage seems to be due to differences in the levels of income, which is evident from the Table - 5.21.

Availability of Facilities at the Neighbourhood level

An analysis of the distribution of public facilities vide Table - 5.22 indicates that the services like health, education, postal, banking

TABLE -5.20

PERCENTAGE DISTRIBUTION OF THE FACILITIES AVAILABLE AT THE HOUSEHOLD LEVEL FOR EACH GROUP OF EMPLOYEE, AS OF 1980-81

Place	Facility Available	Percentage Coverage in Each Group				Total
		A	B	C	D	
Delhi	Kitchen	89.33	86.21	70.34	47.92	69.80
	W.C. bath	79.67	89.66	58.97	27.08	57.55
	Piped water	100.00	93.10	80.69	40.62	76.53
	Electricity	100.0	100.00	93.10	86.46	93.27
	Sewerage	98.67	93.10	70.69	37.50	69.80
Ghaziabad	Kitchen	100.00	75.00	90.00	40.00	78.26
	W.C. bath	75.00	25.00	10.00	-	21.74
	Piped water	100.00	75.00	100.00	40.00	82.61
	Electricity	100.00	75.00	100.00	40.00	82.61
	Sewerage	75.00	75.00	100.00	40.00	78.26
Faridabad-Ballabhgarh Complex	Kitchen	100.00	100.00	83.33	33.33	81.82
	W.C. bath	100.00	100.00	79.17	33.33	78.79
	Piped water	100.00	100.00	91.67	-	96.85
	Electricity	100.00	100.00	95.83	100.00	81.82
	Sewerage	100.00	100.00	83.33	33.33	81.82
Gurgaon	Kitchen	100.00	100.00	100.00	100.00	100.00
	W.C. bath	100.00	100.00	66.67	-	71.43
	Piped water	100.00	100.00	33.33	-	57.14
	Electricity	100.00	100.00	100.00	100.00	100.00
	Sewerage	100.00	100.00	66.67	-	71.43

TABLE - 5.21

PERCENTAGE DISTRIBUTION OF FACILITIES AT THE HOUSEHOLD LEVEL BY INCOME-RANGE OF EMPLOYEES, AS OF 1980-81

Facilities/Income Range (Rs.)	Upto 500	501- 1000	1001- 1250	1251- 1500	1501- 1750	1751- 2000	2001- 2500	2501- 3000	3000	total
Delhi										
Kitchen	33.33	39.24	72.73	76.92	90.32	96.97	88.24	94.44	97.50	69.80
W.C./Bath	20.00	37.97	40.91	57.69	80.65	75.76	74.51	72.22	85.19	57.55
Piped water	30.00	60.13	52.27	76.08	96.77	96.97	98.09	100.00	100.00	76.33
Electricity	80.00	87.34	100.00	100.00	100.00	100.00	100.00	100.00	100.00	98.27
Sewerage	26.67	46.84	47.73	65.38	90.32	90.91	94.12	97.72	100.00	69.80
Ghaziabad										
Kitchen	33.33	77.78	-	100.00	100.00	75.00	100.00	-	100.00	78.26
W.C./Bath	-	11.11	-	-	-	50.00	66.67	-	-	21.74
Piped Water	33.33	88.89	-	100.00	100.00	75.00	100.00	-	-	21.74
Electricity	33.33	88.89	-	100.00	100.00	100.00	100.00	100.00	100.00	88.61
Sewerage	33.33	88.89	-	100.00	100.00	75.00	100.00	-	-	78.26
Faridabad-Ballabhgarh Complex										
Kitchen	-	53.85	100.00	100.00	100.00	100.00	100.00	100.00	100.00	81.82
W.C./Bath	-	46.15	100.00	100.00	100.00	100.00	100.00	100.00	100.00	78.79
Piped water	-	61.54	100.00	100.00	100.00	100.00	100.00	100.00	100.00	84.82
Electricity	-	92.31	100.00	100.00	100.00	100.00	100.00	100.00	100.00	96.97
Sewerage	-	53.85	100.00	100.00	100.00	100.00	100.00	100.00	100.00	81.82
Gurgaon										
Kitchen	-	100.00	100.00	-	-	100.00	100.00	-	100.00	100.00
W.C./Bath	-	50.00	-	-	-	100.00	100.00	-	100.00	71.43
Piped water	-	-	-	-	-	100.00	100.00	-	100.00	57.14
Electricity	-	100.00	100.00	-	-	100.00	100.00	-	100.00	100.00
Sewerage	-	50.00	-	-	-	100.00	100.00	-	100.00	71.43

TABLE - 5.22

AVAILABILITY OF FACILITIES TO EMPLOYEES AT THE NEIGHBOURHOOD LEVEL, AS OF 1980-81

Place	Distance travelled to obtain the facility	Primary School	Secondary School	Dispensary	Post Office	Bank	Bus Stop	Park & & Play-Ground	Community centre, reading room/ library
Delhi	N.A.	4.67	8.37	5.31	4.08	12.65	2.24	23.47	47.96
	Less than 1/2 km.	83.67	68.16	51.43	76.12	64.49	91.02	70.20	41.22
	More than 1/2 km.	11.64	23.47	43.26	19.80	22.86	6.74	6.33	10.82
Ghaziabad	N.A.	8.70	8.70	8.70	-	4.35	-	34.78	65.22
	Less than 1/2 km.	52.17	17.39	47.83	86.96	65.22	60.87	65.22	34.78
	More than 1/2km.	39.13	73.91	43.47	13.04	30.44	39.13	-	-
Faridabad	N.A.	6.06	6.06	3.03	3.03	3.03	3.03	18.18	12.12
Ballab-	Less than 1/2 km.	78.79	63.64	54.55	66.67	48.48	60.61	42.42	33.33
hgarh	More than 1/2 km.	15.15	30.30	42.42	30.30	48.49	36.36	49.40	59.55
Complex									
Gurgaon	N.A.	14.29	14.29	42.86	-	14.29	14.29	42.86	71.43
	Less than 1/2 km.	71.43	57.14	28.57	71.43	57.14	28.57	14.29	28.57
	More than 1/2 km.	14.28	28.57	28.57	28.57	28.57	57.14	42.85	-

N.B.: It is worthwhile to mention here that most of the employees (about 90 percent) do not travel more than 1 Km. in Delhi, while in the ring towns a certain proportion of employees (about 20 percent) have to travel upto 3 kms. to avail the facility except in case of primary school, Bus stop and Post Office which are mainly available within a distance of 1 km.

and community services are more adequate in Delhi as compared to other three towns. The services of primary school, secondary school, post office, bank, bus stop, parks & playgrounds are available at a distance of less than half-a-kilometer to over 65 percent employees in Delhi. With a small variation in the proportion of employees obtaining facility within a distance of half-a-kilometre in the city of Delhi, a similar trend is observed in the case of other three towns of Ghaziabad, Faridabad-Complex and Gurgaon. However, the coverage varies from place to place and service to service which could be observed from the table.

Residence and Place of work

The commuting distance from residance to the place of work has its significance in terms of time spent, distance covered, mode of transport used, expenditure incurred, etc. These factors have salutary effects on the efficiency of employees, if the time and expenditure incurred are minimal.

As regards the distance between residence and the place of work, in Delhi about 40 percent employees have to commute daily between 6-10 km., 17.76 percent between 11-15 kms., 15-30 percent between 16-20 kms. and about 8 percent 20 kms. and above. There are only 15 percent employees who have to commute between 1-5 kms. and 4.29 percent within 1 km. (Table -5.23). But in the case of Ghaziabad, the proportion of corresponding distance is 8.70 percent and 69.57 percent, respectively. There are about 17 percent employees who commute from 20kms. and above.

The situation is, however, different for Faridabad complex and Gurgaon. In the former case, the commuters of within 1 km. distance are 24.24 percent and those between 1-5 kms. about 58 percent; whereas, in the latter, there is no commutation within 1 km. distance but

approximately the same ratio between 1-5 kms. In Faridabad complex, about 15 percent employees commute from a distance of 20 kms. and above and the corresponding proportion for Gurgaon is 28.57 percent.

TABLE - 5.23

PERCENTAGE DISTRIBUTION OF ONE-WAY TRAVEL DISTANCE OF EMPLOYEES BETWEEN RESIDENCE TO PLACE OF WORK, AS OF 1980-81.

City/Town	Distance in Kilometres					
	Up to 1 km.	1-5	6-10	11-15	16-20	20+
Delhi	4.29	15.10	39.59	17.76	15.30	7.96
Ghaziabad	69.57	8.70	4.35	-	-	17.38
Faridabad-Ballabhgarh	24.24	57.56	3.05	-	-	15.15
Gurgaon	-	57.14	-	14.29	-	28.57

A further analysis of distance travelled by different categories of employees vide Table - 5.24 reveals some interesting features. The majority of Group 'A' employees have to commute less distance. Between 6-10 kms. is the common distance for 37 percent of employees in group 'A' 39 and 45 percent employees in group 'C' and 'D' respectively. Only 1.33 percent of group 'A' employees commute a distance of 20 kms. and above.

TABLE - 5.24

PERCENTAGE DISTRIBUTION OF ONE-WAY TRAVEL DISTANCE OF DIFFERENT CATEGORIES OF EMPLOYEES BETWEEN RESIDENCE TO PLACE OF WORK IN DELHI, AS OF 1980-81

Employees Group	Distance covered in Kilometers					
	Upto 1 km.	1-5	6-10	11-15	16-20	20 km.& above
A	6.67	24.00	37.33	20.00	10.67	1.35
B	3.45	17.24	34.48	13.79	31.03	-
C	4.48	11.72	38.97	19.31	15.17	10.34
D	2.08	17.71	44.79	12.50	14.58	8.33

Mode of Transport Used

After having analysed, the category-wise travel distance between residence to the place of work, it is worthwhile to examine the mode of transport used by employees. In Delhi, about 70 percent employees use public transport (buses) and only 8.20 percent privately owned chartered buses, while 8.20 percent commutes on foot. About 2.19 percent use taxis/scooteres, 3.83 percent use own auto conveyance (car/scooter/motor-cycle) and 3.46 percent use bicycles which is equivalent to the proportion of commuter by train. Only less than 1 percent use cycle rikshaw.

In the case of Ghaziabad, 15.62 percent employees use their bicycles, 12.50 percent public transport (buses), 9.38 percent commute by train and 6.25 percent by cycle-rikshaw. The proportion of on-foot commuters in Faridabad complex is 28.57 percent, while in Gurgaon only 4 percent. The proportion of Gurgaon being so low, for the simple reason

of small representation of samples. In Gurgaon, majority of employees use public buses and next alternative is bicycles which is being used by about 33 percent of commuters (Table - 5.25)

TABLE - 5.25

PERCENTAGE DISTRIBUTION OF THE MODE OF TRANSPORT BEING USED BY EMPLOYEES, AS OF 1980-81.

Mode of Transport	Delhi	Ghaziabad	Faridabad Ballabhgarh	Gurgaon
On foot	8.20	56.25	28.57	4.00
Public Buses	69.76	12.50	17.14	40.44
Private Buses	8.20	-	2.86	11.11
Taxi/Scooter	2.19	-	-	-
Cycle Rickshaw	0.90	6.25	5.76	11.11
Train	3.46	9.38	-	-
Car/Scooter/ Motor Cycle	3.83	-	14.29	11.12
Bi-cycle	3.46	15.62	31.38	33.37

The use of public buses in the three towns of Ghaziabad, Faridabad Complex and Gurgaon is mainly because of commuters from Delhi. In these towns there are no public buses used for intra-town transport.

Further the proportion of employees who use only single mode of transpot is 88.37 percent in Delhi, 69.57 percent in Ghaziabad, 93.94 percent in Faridabad complex and 85.71 percent in Gurgaon. The proportion of those using two-modes of transport is 11.22 percent in Delhi, 21.74 percent in Ghaziabad and 6.06 percent in Faridabad complex. But those employees who use three and more modes of transport, their

propotion in Delhi is negligible i.e. 0.41 percent, in Ghaziabad 8.70 percent and in Gurgaon 14.29 percent (Table-5.26) see fig. 5(d).

TABLE - 5.26

PERCENTAGE DISTRIBUTION OF MODES OF TRANSPORT USED BY EMPLOYEES, AS OF 1981.

Place	Number of modes used		
	One	Two	Three or more
Delhi	88.37	11.22	0.41
Ghaziabad	69.57	21.74	8.70
Faridabad-Ballabhgarh	93.94	6.06	-
Gurgaon	85.71	-	14.29

Household expenditure

It is widely acclaimed that expenditure depends on the income of an individual or a family. In other words this tantamounts to saying that expenditure is a function (dependent variable) of income. But, whether expenditure on various items, mostly essential ones, varies for different income groups and class of society, or proportionately distributed among them, or few items. This phenomenon is completely eliminated by lower income group. This part of the analysis is confined to know the expenditure pattern of a household (which represents an income group or class) on different items like house-rent, education, food and clothing, health, transportation, and on various services needed by the household. The items listed for the study are not

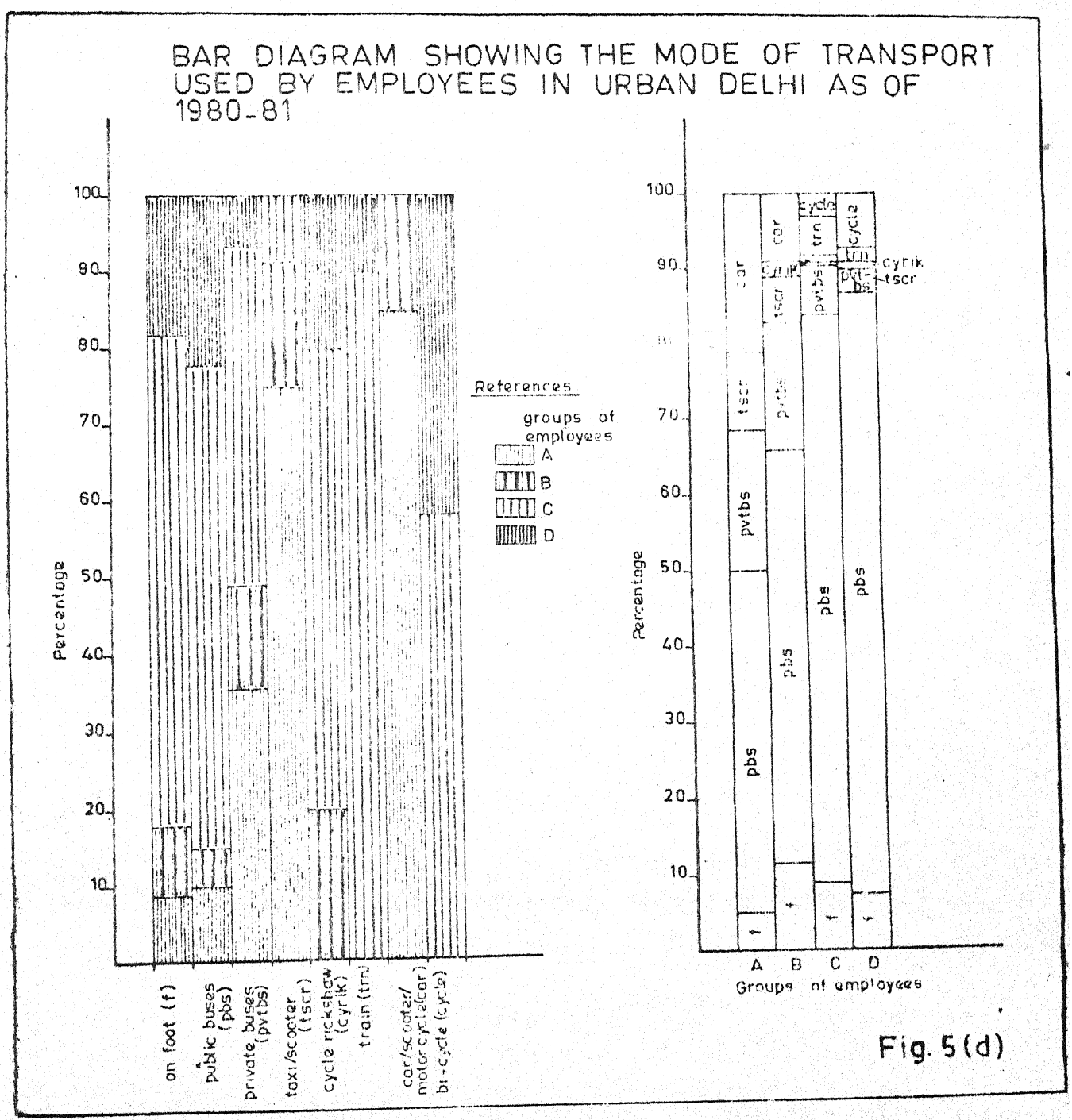
BAR DIAGRAM SHOWING THE MODE OF TRANSPORT USED BY EMPLOYEES IN URBAN DELHI AS OF 1980-81
Percentage
100
90
80
70
60
50
40
30
20
10
References
groups of employees
A
B
C
D
on foot (f)
public buses (pbs)
private buses (pvtbs)
taxi/scooter (tscr)
cycle rickshaw (cyrik)
train (trn)
car/scooter/ motorcycle(car)
bi-cycle (cycle)
pbs
pvtbs
tscr
cyrik
car
f
A B C D
Groups of employees

Fig. 5(d)

exhaustive but selective and the expenditure items have been grouped into:

(i) expenditure on services, like house-rent, education electricity and water, transport, medical, telephone and entertainment, and

(ii) expenditure at the household level, like kitchen items including fuel, clothing, servants and miscellaneous expenditure.

The distribution of these two broad clasifications of expenditure based on the size of income and employment has been given in the Tables-5.27 and 5.28 respectively.

Expenditure on Services

The expenditure on services in being incurred nearly in the same proportion, ranging from 24.5 percent to 27.4 percent of the total household income in each town (Table-5.27). Delhi and Ghaziabad are two towns where each income-group is uniformly spending money on services varying between 22 to 30 percent only. But, in Faridabad complex and Gurgaon, high fluctuations are observed mainly in the income group Rs. 751-2500. More variation in four groups of employment is visible in these two towns(Table-5.28). where group-A and group-B employees are spending more money on services between 35-45 percent in Faridabad complex and group-B 42 percent in Gurgaon. Group-C employees spend too less a proportion of the total expenditure i.e. 15 percent and 9 percent respectively. Thus, expenditure on services in each income-group and class in Delhi and Ghaziabad has increased equally with the rise in the income of a person/family. But in Gurgaon and Faridabad complex, thre is some variation probably because of certain items of expenditure like electricity whose per unit cost is relatively cheaper in these towns as

TABLE - 5.27

DISTRIBUTION OF HOUSEHOLD EXPENDITURE BY SIZE OF INCOME, AS OF 1980-81.

Income Group (Rs.)	Expenditure on Service [1]				Household Expenditure [2]			
	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon	Delhi	Chaziabad	Faridabad Ballabhgarh	Gurgaon
Bellow 500	33.33	24.32	27.15	-	77.19	115.09	72.77	-
501-1000	23.67	28.71	26.96	21.15	71.07	75.33	58.19	58.15
1001-1250	23.45	23.10	36.61	-	65.80	66.53	77.31	-
1251-1500	29.14	25.18	32.82	-	62.04	75.53	57.94	-
1501-1750	29.25	25.94	23.28	21.18	59.93	71.43	84.48	78.82
1751-2000	26.29	29.19	37.02	45.28	60.00	78.01	57.49	54.72
2001-2500	25.44	-	31.89	39.57	58.80	-	35.59	-
2501-3000	24.24	29.00	13.21	-	55.59	74.67	66.09	-
3000 and above	22.29	-	27.31	8.65	46.99	-	49.84	41.30
Total	24.95	26.78	27.40	24.50	58.47	77.29	57.01	57.26

1. Expenditure on services includes house-rent, education, electricity, water supply, transport, medical, telephone and entertainment.

2. Household expenditure includes kitchen items, clothing, servant and miscellaneous items.

Contd...

TABLE - 5.27 (Contd.)

DISTRIBUTION OF HOUSEHOLD EXPENDITURE BY SIZE OF INCOME AS OF 1980-81

Income Group (Rs.)	Total Expenditure			
	Delhi	Ghaziabad	Faridabad - Ballabhgarh	Gurgaon
Below 500	107.52	139.41	99.92	-
501-1000	94.74	104.04	85.15	79.33
1001-1250	89.25	89.63	113.92	-
1251-1500	91.18	100.71	90.76	-
1501-1750	89.18	97.37	107.76	100.00
1751-2000	86.29	107.20	94.51	100.00
2001-2500	84.24	-	67.48	80.87
2501-3000	80.83	103.67	79.83	-
3000 and above	69.28	-	77.15	66.35
Total	83.42	104.07	84.41	81.76

TABLE - 5.28

DISTRIBUTION OF EXPENDITURE BY SIZE OF INCOME, AS OF 1980-81.

Employees	Expenditure				Household Expenditure				Total Expenditure			
Group	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon
A	29.30	25.93	35.71	21.18	68.17	73.53	39.00	78.82	97.67	99.46	74.71	100.00
B	21.83	26.50	45.24	42.07	56.24	71.83	64.27	47.56	78.07	98.33	109.51	89.63
C	23.47	28.39	24.32	14.83	60.54	75.06	58.20	57.99	84.01	103.45	82.52	72.82
D	24.75	24.32	27.15	9.23	71.11	115.09	72.77	56.41	95.86	139.41	99.92	65.64
Total	24.95	26.78	27.40	24.50	60.47	77.29	57.01	57.26	83.42	104.07	84.41	81.76

compared to Delhi and Ghaziabad (see Chapter-7). The variation is also because of transport expenditure and entertainment and recreational facilities.

Expenditure at the Household Level

Expenditure at the household level varies very significantly in each town. In Delhi, while 58 percent of the total income is being spent at the household level, its proportion is more in the lower-income group which shows a declinging trend after an increase in the household income. The highest proportion of family expenditure is 77 per cent in the income-group below Rs. 500 and about 47 percent in the family income-group Rs. 3000 and above.

In Ghaziabad, the households earning below Rs. 500 are living hand to mouth and feeding themselves and their family any how by spending 115 percent i.e. more than their income (borrowing money and ration on credit). However, in the higher income groups from Rs. 500 onwards, the situation shows an improvement spending nearly 75 percent of total income, but, this proportion is still more than the household expenditure in Delhi. Faridabad complex and Gurgaon which have incurred about 57 percent of their total income, as in Delhi, and also observed the same pattern of expenditure among different income-groups, with the exception of income-group Rs. 1501-1750, where the ratio is more in Faridabad and Gurgaon and in the income-group Rs. 2001-2500, the ratio is too less. The obvious conclusion that could be drawn is that the proportion of expenditure even at the household level, more or less depends on a variety of factors eg. tastes, choice of items including income of an individual or the household.

Total Expenditure:

Employees in Delhi, Faridabad-complex and Gurgaon have spent about 83 percent of their total income, while in Ghaziabad over and above their total income i.e. 104 percent on services and at household. Since the pattern of total expenditure is dominated by the expenditure at the household level, it shows the similar characteristics of expenditure which have been observed in the case of each town, i.e. of declining trend. This suggests that the employees with meagre income are consuming all, but the employees earning more do not consume more but a definite proportion, even if their income increases, depending on their choice of tastes and preferences.

Expenditure on Various-Items

The pattern of expenditure on various items has been given in the Appendices-1-4 for Delhi, Ghaziabad, Faridabad-Complex and Gurgaon, respectively. The appendices show that employees of each income-group do require most of the items of consumption and services excepting servant and telephone.

It is further observed that there is neither elimination of expenditure on any item by any income-group nor proportionately even less expenditure is being made by the lower income group. In fact, the proportion of expenditure is more in lower income-group, as observed earlier in the case of kitchen items particularly, in each town wherever there has been a continuous decline on items of expenditure with a rise in income. The share of kitchen items has been 41 percent of total income which declines from 56 percent in the income-group below Rs. 500 to 34 percent in the income-group Rs. 3000 and above. Employees in Ghaziabad spend 55 percent of their income on kitchen items but its

declining range varies from 74 percent to 48 percent. In Faridabad and Gurgaon, the share of kitchen items has been about 38 percent of the employees total income which also shows a declining trend. The analysis thus supports the observations made by the German Statistician, Ernst Engel who states that as a family income increases, a smaller and smaller proportion of income is spent on food items. The Engel curve for each town has been shown in the figure 5(e).

In an average family size of five member household with hypothetical monthly income of Rs. 1000, the expenditure on various items will emerge as it has been shown in the Table - 5.29. The house-

TABLE - 5.29

DISTRIBUTION OF HOUSEHOLD EXPENDITURE AS OF 1980-81

(Amount in Rs.)

Items	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon
House-rent	78	88	72	81
Education	32	54	18	46
Electricity	23	24	27	24
Water Supply	5	5	6	4
Transport	62	46	81	59
Medical	14	22	26	5
Telephone	3	-	10	-
Clothing	88	96	134	103
Kitchen	413	553	382	397
Servant	9	6	8	15
Entertainments	32	29	34	26
Miscellaneous	75	118	46	58
Total	834	1041	844	818

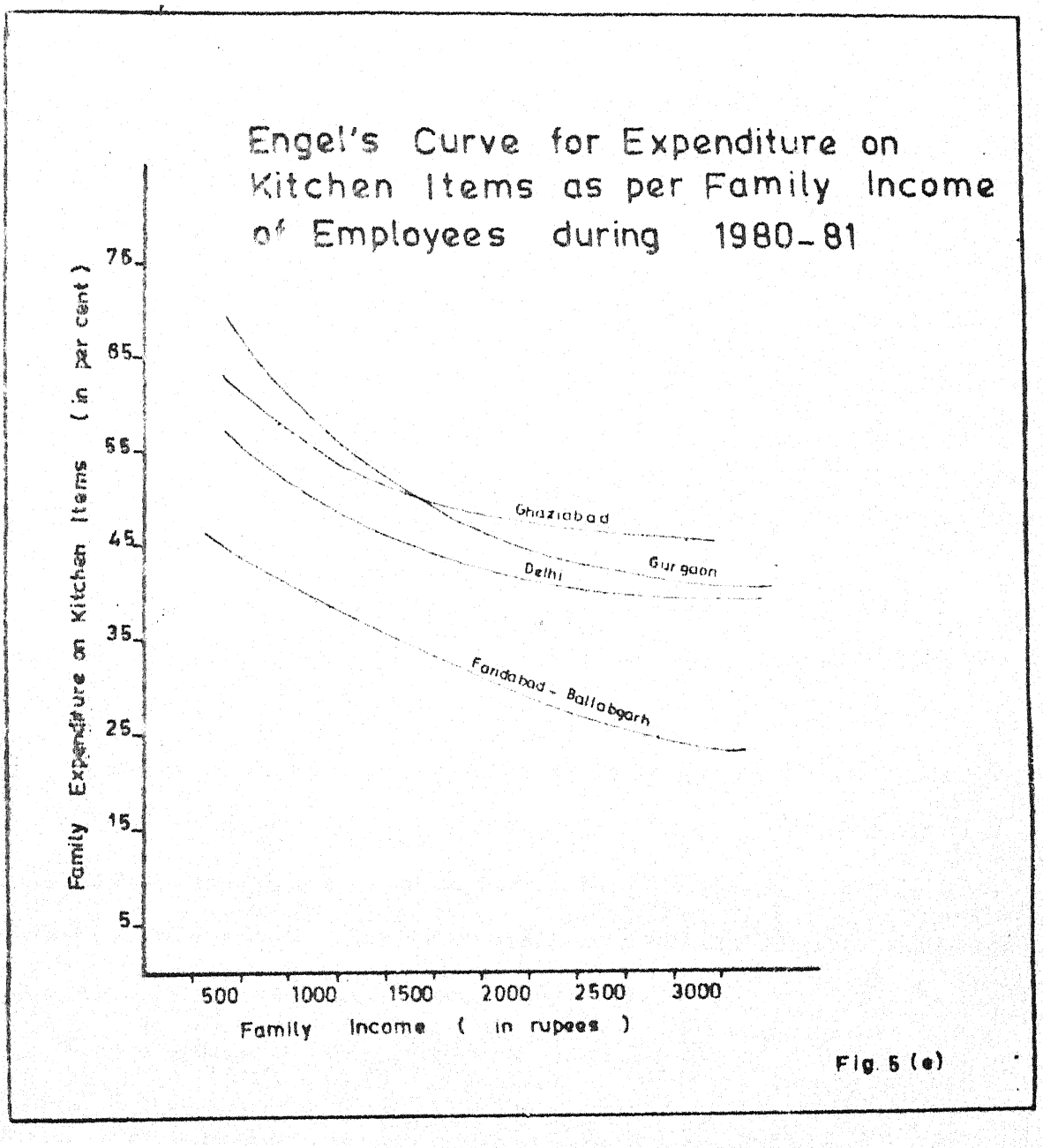
Engel's Curve for Expenditure on Kitchen Items as per Family Income of Employees during 1980-81
Family Expenditure on Kitchen Items (in per cent)
75
65
55
45
35
25
15
5
Ghaziabad
Gurgaon
Delhi
Faridabad - Ballabgarh
500
1000
1500
2000
2500
3000
Family Income (in rupees)

Fig. 5 (e)

rent seems to be of the order Rs. 80 only. But, this is the rent being paid on the basis of the total income of the household having two or more earners. The house-rent for an individual employee or single earner family household has been worked out seperately for each group of employee. Group A and B employees pay 10 percent of their salary in addition to the HRA contribution by the Government. While employees in Group 'C' pay 20 percent and group 'D' 15 perent of their salary. This has been observed in the case of all towns excepting Gurgaon, where the expenditure on house-rent is relatively less than other towns and an employee of group-C pays only 10 percent of his salary towards rent.

The maximum household expenditure on education is Rs. 54 in Ghaziabad, followed by Rs. 46 in Gurgaon, Rs. 32 in Delhi and Rs. 18 only in Faridabad complex.

The maximum household expenditure on transport is Rs. 81 in Faridabad-complex followed by Delhi and Gurgaon Rs. 60 and Ghaziabad Rs. 46.

Employees in Faridabad-complex seems to be spending more money on clothings as compared to the other three towns, while on kitchen items a household in Ghaziabad spends Rs. 553 followed by Rs. 413 in Delhi, Rs. 397 in Gurgaon and Rs. 382 in Faridabad complex. Total itemwise expenditure at each place has been shown in figure 5(f)

Thus, Ghaziabad is the place where employees are spending moe money than what they get, while employees in the other three-towns spend between Rs. 818 and Rs. 844 only. Thus, the savings of employees in Delhi, Gurgaon, and Faridabad-complex save only marginally.

DISTRIBUTION OF EMPLOYEES' HOUSEHOLD EXPENDITURE, AS OF 1980-81

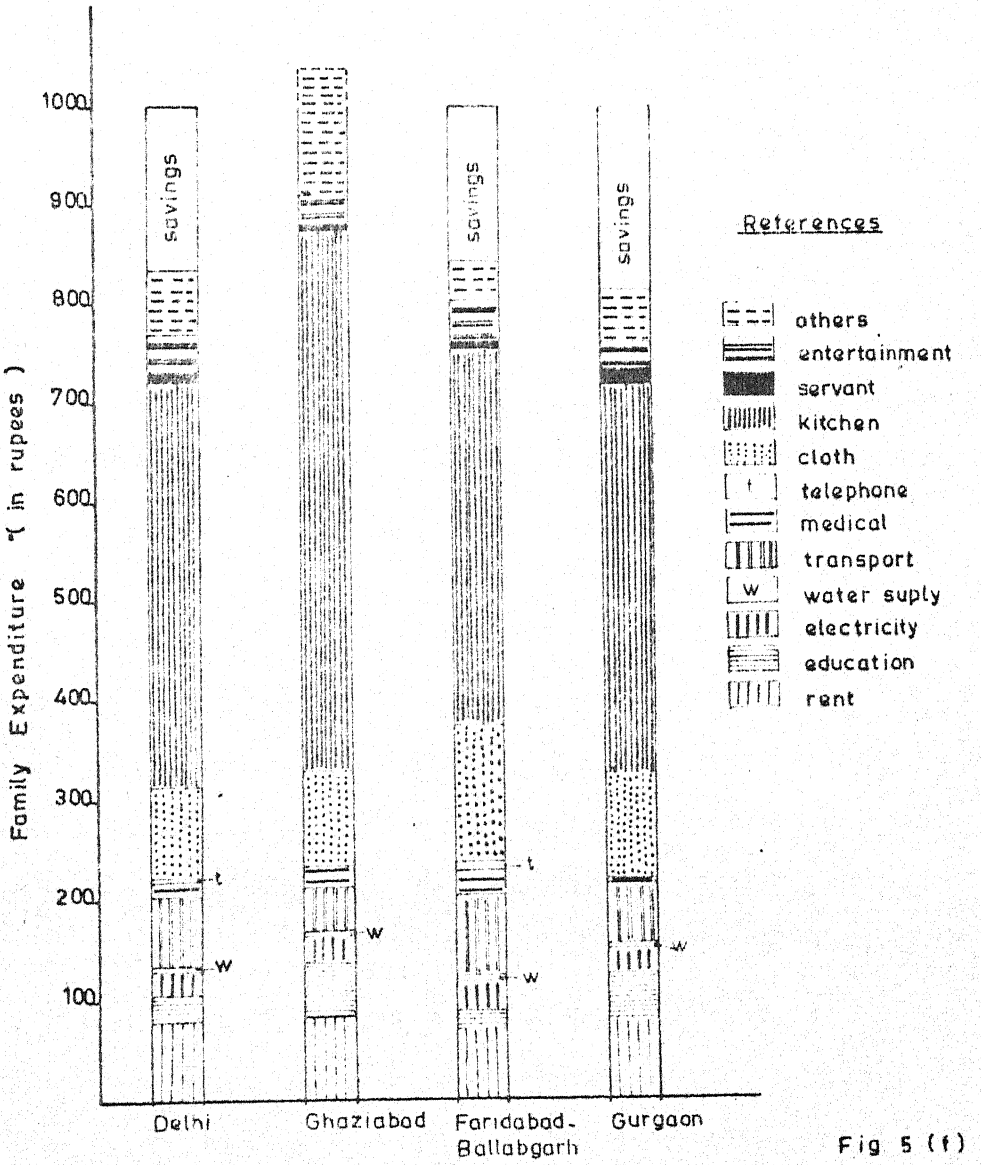

Fig 5 (f)

Savings

Savings is that amount of current income which is not spent on consumption and kept for future consumption to meet the emergeny requirements or social obligations of children and family. Saving is made through securities and in the form of liquid assets or cash in bank or household. There are also compulsory saving where the employer or government deducts a certain amount of his salary e.g. contributions towards general provident fund, compulsory deposit savings, additional dearness allowance, house rent allowance, etc. The analysis is confined to both the kinds of saving. In the latter case savings are made through deduction at source; while in the former case, there are savings other than deduction made at source.

Savings at Source of Income

Savings through deduction made at source from gross salary has almost been uniform in all the towns and cities. It may be on account of uniform norm fixed by the government. The proportion of employees in different savings-range in different income-groups and for all the towns has been given in Appendices 5(5), 5(6), 5(7), and 5(8). From the appendices it appears that the high saving-range has been possible only by the employees earning more than Rs. 1500 per month.

A saving upto Rs. 100 has been observed to be common in all income-groups. The proportion of savers in different income-range goes on declining with the rise in saving-range and this is a very interesting phenomenon to observe. The proportion of savers in the saving-range between Rs. 101-300 shows fluctuations from 16 percent to 54 percent in the six income-groups ranging between Rs. 1000 to Rs. 3000.

Assuming that the saving made through deductions being the same in all the places, about 45 percent households have saved upto Rs. 100, 18 percent between Rs. 101-200, and 15 percent Rs. 500 and above and 20 perent between Rs. 201-400. About 1.5 percent of employees do not save at all but they fall in the lower income-group upto Rs. 1000.

Other Savings

Savings other than deduction made by the government or employer at the source is the real saving of a family which is made by the household itself by refraining present consumption for future use. And at its current income, this saving, inevitably, becomes the domestic saving. The savings-range of household employees in different income-groups has been varying from place to place as given in Appendices 5(9) to 5(12) for Delhi, Ghaziabad, Faridabad-Complex and Gurgaon respectively.

It is observed from the tables of appendices that there are variations in savings range in different income-groups. It is in Delhi alone, where 30 percent of employees earning below Rs. 500 are able to save at the household level, and 69 percent of people in Faridabad-Complex in the next income-group are saving upto Rs. 100. The range of domestic saving in Ghaziabad has been poor, where the family expenditure has exceeded their incomes as already stated earlier. The range of domestic savings is being given in the Table - 5.30.

The above-mentioned table shows that the saving potential of 74 percent of households at Ghaziabad is zero, and in fact, negative, is also observed that the remaining 26 percent of families are not saving beyond Rs. 200.

TABLE - 5.30

HOUSEHOLD SAVINGS, AS OF 1980-81

Town/City	Range of Savings						
	Upto Rs.100	Rs.101-200	Rs.201-300	Rs.301-400	Rs.401-500	Rs.501- and above	No Saving
Delhi	22.86	11.02	6.94	4.90	4.49	9.39	40.40
Ghaziabad	17.39	8.70	-	-	-	-	73.91
Faridabad-Ballabhgarh	33.33	15.15	9.09	3.03	12.12	18.19	9.09
Gurgaon	-	28.57	-	-	14.29	14.28	42.86

Approximately 40 percent of families living in Delhi and Gurgaon do not have household savings. In Delhi, 23 percent save upto Rs. 100, 11 percent between Rs. 101-200, 7 percent between Rs. 201-300, 5 percent between Rs. 301-500 and 9 percent of families save Rs. 500 or more. While in Gurgaon 28 percent of families save between Rs. 101 - 200 and the rest between Rs. 400 and more.

The saving potential of families living in Faridabad-Complex is the highest, where 91 percent of families are having household savings. About 33 percent households save upto Rs. 100, and 30 percent families save more than Rs. 400. Thus, the domestic savings are the highest in each size of savings range in Faridabad-complex.

CHAPTER - 6

ECONOMIC BASE AND EMPLOYMENT STRUCTURE

Urban growth rates vary not only among urban areas of different size-groups but also for the same urban area over time. Individual urban areas may exhibit relative fluctuations in the pattern of sectoral employment depending upon the mix of economic activities. If an urban area is an exact microcosm of the national economy, the same relative changes may be expected in the urban area as at the national level. But urban areas are hardly replicas of the national economy. Hence, fluctuations in the economic activities are bound to go on changing and broadening the economic base of urban areas.

The growth of an urban area in terms of its economic base implies that its size and growth depends upon a set of economic activities whose production is exported. The export sector of an urban economy is called the basic sector. Any spurt in basic activities would directly increase the demand for labour. With the growth of basic activities, usually extensions in the infrastructure of power, transport, and various other tertiary services become necessary to support the basic sector activities. These supportive activities have been considered as non-basic ones. The mutual interaction of these two basic and non-basic sectors contributes to further demand for labour and thus more employment[1] with the growing economic base of the towns and cities.

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1. Misra, V.N. R.K. Wishwakarma, K.V. Sundaram, Economic Base and Multiplier Analysis: A Study of Indian Towns and Cities, Indian Journal of Industrial Relations, Vol.11, No.2, October 1975, p.178.

Methodology

In order to estimate the economic base of the towns and cities selected for the study, the economic activities, based on census classification, have been categorised under nine major activities. The census classification is given as under:

I. Cultivator

II. Agriculture labourer, livestock, forestry fishing and hunting

III. Plantation and Allied Activities

IV. Manufacturing and Processing:

(a) Household Industries

(b) Other than household industry

VI. Construction

VII. Trade and Commerce

VIII. Transport, Storage and Communication

IX. Other Services

In order to identify the basic sector, these activities have been further divided in two groups: basic sector and non-basic sector. But to exclude the component of agriculture from the basic sector, it has been further devided into two groups: basic-B_1 and basic-B_2. Basic-B_1 includes occupational categories from I to VI and basic-B_2 includes from IV to VI excluding categories I to III pertaining to agriculture and allied activities. The non-basic sector includes the occupational categories from VII to IX which are basically tertiary in nature.

For a deeper analysis of employment structure and activity pattern, functionally, these sectors could be expressed in the equation form:

Basic (B_1) = f (agriculture and allied activities, manufacturing, processing, and construction activities)

Basic (B_2) = f (Manufacturing, processing and construction activities)

Total Employment = f (Basic Employment)

In order to estimate (i) the total increase in employment, for a unit increase in employment of any activity and (ii) to know the minimum level of employment, when employment in any particular activity is assumed as zero, the regression equation of the form -

$$Y_i = a_i + b_i X_i \quad (i = 1, \ldots 9)$$

has been fitted by the least square method, where 'b' is the coefficient of X i.e. regression coefficient and estimates the first problem of employment multiplier and 'a' is the intercept which tells us the minimum level of employment at zero level of activity.

In order to know the relationship between workers in different activities vis-a-vis the basic workers and the total workers as given in the Table - 6.1, a correlation matrix has been constructed. The results of the correlation matrix are given in the table - 6.2. It reveals that it is the basic employment which determines the total employment. In each town and city of the study area, workers angaged in basic category have a high degree of correlation with the total workers as shown in the table. The range of these correlations have varied between 73 percent to 89 percent in all the towns excepting Faridabad-Ballabhagarh complex, which has shown a relatively low correlation of 53 percent.

Since basic employment is the function of workers in agriculture and allied activities, manufacturing and household industries and of construction activity, the correlation of each category of workers has also been given in the table - 6.2. In Delhi, workers engaged in mining and quarrying have almost negligible (only 2 percent) correlation with basic workers. Next in order are the agricultural workers having a correlation of 26 percent with basic workers. The correlation of other categories of workers with basic workers is very high, suggesting that the components of basic workers are highly correlated with basic and the total workers.

In Ghaziabad town, all category of workers in basic activity, excepting the component of agriculture which has a correlation of 1.5 percent only, the others are highly correlated with basic workers denoted by the high coefficients of correlation, even upto 80 percent in the construction activity. In Gurgaon, workers engaged in mining and quarrying have inverse relation with the basic workers denoted by a negative coefficient of correlation (17 only), while in Faridabad-Ballabhgarh, it has a positive but very weak correlation of only 7 percent. The other components of basic workers are highly correlated with basic and total workers.

Economic Base of the Towns and Cities

Delhi

An analysis of the economic base of the towns and cities of the study area reveals that for a unit increase in the basic sector B_1, the total employment has increased by 1.99 in 1971 and 2.50 units in 1981 (Table - 6.3). While in the basic sector B_2 which excludes agriculture, the total employment increased by 2.06 and 2.60 units during the

corresponding period. Despite so much increase, the coefficients of elasticity (Table - 6.4) are though positive, they are not inelastic. The elasticity ranges from 58 percent in 1971 to 67 percent in 1981 for the basic B_1 and from 56 percent in 1971 to 65 percent in 1981 for the basic B_2. The conclusion that could be drawn out of this analysis is that although workers in basic B_1 and B_2 are in a good supply, they have not been able to multiply the total employment level by more than two units. The coefficient of determination ($\overline{R}^2$) shows a very strong relationship of the order of 68 to 79 percent between employment in the basic sector and the total employment.

Ghaziabad

In Ghaziabad too, both the categories of basic B_1 and B_2 have not been able to multiply the total employment for more than one although they have a high degree of relationship between 41 percent in 1971 and 72 percent in 1981 for (B_2) and between 34 percents and 67 percent for B_1 during the corresponding period. However, there is an increasing pattern but insignificant as denoted by the positive coefficient of elasticity of less than unity (71 and 67 percent), has a bearing on the Government policy and the local administration to provide more services commensurate to the demands of basic sector (Table - 6.5 and 6.6).

Faridabad-Ballabhgarh

In Faridabad-Ballabhgarh complex, the value of economic base multiplier was 1.5 for both the categories of (B_1) and (B_2) with a very high degree of relationship between basic employment and the total employment. The coefficient of determination ($\overline{R}^2$) varied between 84 percent in 1971 to 88 percent in 1981 (Table - 6.7). Like Ghaziabad,

Faridabad-Ballabhgarh complex also possesses the same characteristics in regard to the tendency of increasing pattern of workers with a positive coefficient of elasticity varying between 72 to 89 percent for both the categories of basic sector (B_1 and B_2) during 1971 and 1981 (Table - 6.8). With high degree of manufacturing base (about 60 percent), the non-basic sector is lagging far behind and there is ample scope for the expansion of this sector to increase the total employment further.

Gurgaon

In Gurgaon, although basic workers have multiplied total employment level by more than two units, the degree of relationship between basic workers and the total employment has deteriorated and ranged between 77 to 83 percent during 1971, while it remained between 40 to 49 percent in 1981 (Table - 6.9). And the characteristics of elasticity coefficients are the same as for the other towns observed in this study, but the proportion of basic workers to total workers was 25 percent only (Table - 6.10).

Activity Employment Multiplier

In Delhi, workers in livestock and allied activities (category-III), manufacturing and processing (category-V), construction (category-VI) trade and commerce (category-VII), transport, storage and communication (category-VIII) and other services (category-IX) have been able to multiply the total employment both during 1971 and 1981 (Table - 6.2). The coefficient of multiplier for a unit increase in the transport, store and communication was 6 units (b = 6.19) and that of construction 7 units (b = 7.08). The next comes trade and commerce (b = 3.22), manufacturing (b = 2.84) and services (b = 1.83). All the

results are significant at 1 percent level of probability. But the elasticities of trade and commerce, transport and communication services with respect to total employment though positive, are relatively in elastic, namely, 67 percent, 66 percent and 65 percent, respectively. Manufacturing and construction with elasticities of 48 percent and 39 percent are completely inelastic. The conclusion that emerges from this analysis is the dominance of tertiary sector in the urban economy of Delhi.

The highest coefficient of multiplier in the category of cultivators (12 in 1971 and 59 in 1981) and livestock (29 in 1971 and 51 during in 1981) is due to the lesser proportion of this activity (0.2 and 0.8 percent) in the total employment. This suggests that these categories have not contributed much to increase the total employment. Workers in this category, in other towns of Ghaziabad and Gurgaon are insignificant and in Faridabad, these activities have a weak correlation though, hypothetically, they have a high value of multiplier i.e. 61 in 1971 and 19 in 1981.

Workers in manufacturing in Delhi have multiplied total employment by 3 units. It has shown an increasing pattern but with an elasticity of 48 percent and a high degree of coefficient of determination ($\bar{R}^2$ = 53 and 61 percent) during 1971 and 1981.

In Ghaziabad town, results of 1971 show manufacturing as an insignificant activity but during 1981, it became significant even at 1 percent level of confidence, which could multiply total employment by two units, for a unit increase in the manufacturing employment. A very high degree of relationship between manufacturing workers and the total workers has been observed in Ghaziabad during 1981, which inspite of

showing an increasing pattern had an elasticity of 60 percent but a high degree of coefficient of determination ($\bar{R}^2$ = 68 percent).

The construction activity is a very vital activity in the process of urbanisation. Delhi has employed about 5.8 percent of total workers in the construction activity followed by Ghaziabd 4.2 percent, Gurgaon 3.4 percent, and Faridabad 2.6 percent during 1981. This also indicates the descending order of the construction activity in the four towns and cities during eightees. It is, as a consequence of this share in the construction activity that an additional increase of worker in the construction activity in Delhi, has increased the total employment by 5.7 units in 1971 and 7.1 units in 1981, and that too, having a good relatioship with the total workers (34 and 45 percent respectively during the corresponding period).

In the town of Ghaziabad, workers in the construction activity have an appreciably high degree of relationship (than Delhi) with the total employment i.e. of the order of 57 percent in 1971 and 79 percent in 1981. Also, their capacity to multiply total employment has been more in Delhi, as the value of multiplier was 8 units in 1971 and 13 units in 1981. It indicates that the construction activity in Ghaziabad had been very much in operation during past the few years.

The almost above situation has been observed in Faridabad - Ballabhgarh complex also, but, the multiplier of the construction activity has declined from 25 in 1971 to 12 and 1981. The high values of multipliers in Delhi, Ghaziabad, Faridabad complex indicate the dependence of total employment.

Contrary to the above trend, Gurgaon has neither observed the above phenomenon which Delhi and the other two towns have been facing in the

recent past nor have shown a high degree of relationship jointly with other activities on total employment. The coefficient of determination ($\bar{R}^2$) was 30 percent for 1971 and insignificant for 1981.

In trade and commerce, Delhi had a share of 22 percent in the total workers, followed by 19.7 percent in Gurgaon, 18 percent in Ghaziabad, and 12.6 percent in Faridabad. This suggests that first three towns are business and commerce dominating towns, while Faridabad complex has been dominating in manufacturing and household industries having a share of 54 percent in this activity. In Delhi a unit increase in trade and commerce has multiplied total employment by 2.7 units in 1971 and 3.2 units in 1981 having a high degree of coefficient of determination ($\bar{R}^2$), and thus, it shows the inter-dependence of these two activities.

In Delhi, for a unit increase in transport worker, the total employment multiplied by 5.49 units (1971) and 6.19 units (1981). Workers in transport in other towns of the region i.e. Ghaziabad and Gurgaon also have had a strong coefficient of determination ($\bar{R}^2$ = 50 percent) with other workers. For a unit increase in the transport worker, the total employment has multiplied by 5 units.

In so far as the other services are concerned, Gurgaon shares about 45 percent followed by Delhi (38 percent), Ghaziabad (23 percent), and Faridabad (22 percent). In the latter two towns, manufacturing and other household industrial workers have dominated the working community, while the service sector in Delhi and Gurgaon. A minute observation, evidently, shows that services workers are strongly related with other categories of workers in Delhi having $\bar{R}^2$ = 65 percent in 1981. But, unfortunately the services have not given a high coefficient of multiplier to the extent of workers in transport. In other three towns,

Gurgaon probably, because of its major share in services, has witnessed a very strong relationship to the extent of 86 percent with other workers and the coefficient of elasticity approaching to unity.

The above analysis of the occupational structure and economic base of the towns and cities reveals the dominance of basic activity in case of Faridabad - Ballabhgarh and Ghaziabad and of non-basic activity in case of Delhi and Gurgaon during the decade 1971-81. This has an important bearing on the growth potential and further development of Faridabd - Ballabhgarh and Ghaziabad urban agglomerations in terms of non-basic sector which has not grown proportionately with the growth of basic sector. Even during 1971-81, there has been no sign of decline in the manufacturing activity in any other town excepting Delhi, but the trade and commerce function has declined in almost all the four towns and cities of the National Capital Region. The service function, excepting Delhi, has gone down in other towns of the Region. Even transport and communication network has not improved in other towns with the exception of Delhi.

TABLE 6.1

PERCENTAGE DISTRIBUTION OF WORKERS BY INDUSTRIAL ECONOMIC ACTIVITY AND ECONOMIC BASE OF SELECTED TOWNS AND CITIES DURING 1971 AND 1981.

Sl. No.	City/Town	Delhi		Faridabad-Ballabhgarh		Gurgaon		Ghaziabad	
	Industrial Economic Activity	1971	1981	1971	1981	1971	1981	1971	1981
I.	Cultivation	0.46	0.24	1.26	2.98	1.91	2.27	2.09	3.80
II.	Agriculture labour, Livestock/Forestry, Fishing & Hunting	0.32	0.18	1.63	1.15	1.31	1.26	1.64	2.69
III.	Plantation and Allied Activities	0.81	0.83	0.45	0.44	0.44	0.42	0.57	0.58
IV.	Mining and Quarrying	0.01	0.01	0.03	0.02	0.01	0.01	0.06	0.07
V.	Manufacturing & Processing V(a) and V(b)	24.16	23.07	54.43	54.67	15.78	18.36	34.43	36.44
VI.	Construction	5.49	5.80	2.65	2.58	3.64	3.43	4.38	4.27
VII.	Trade and Commerce	21.91	21.86	13.12	12.66	20.15	19.70	18.57	18.00
VIII.	Transport, Storage & Communication	9.75	9.98	4.05	3.82	9.60	9.36	12.57	11.47
IX.	Other Services	37.09	38.03	22.38	21.68	47.16	45.19	25.89	22.68
	Economic Base								
A	Basic Activity (B_1)	31.24	30.13	60.45	61.84	23.09	25.75	43.17	47.84
	Basic Activity (B_2)	29.65	28.87	57.11	57.27	19.43	21.80	38.87	40.78
B	Non-Basic Activity	68.78	69.87	39,55	38.16	76.91	74.25	56.83	52.16
C	Basic/Non-Basic Ratio	1:2.20	1:2.32	1:0.65	1:0.61	1:3.33	1:2.88	1:1.32	1:1.09

Note: 1. V(a) Category is household industry.
V(b) Other than household industry.

2. Basic activity (B_1) includes category 1 to 6 and Basic (B_2) includes category 4 to 6.

3. Non-basic activity includes from category 7 to 9.

TABLE - 6.2

CORRELATION MATRIX OF WORKERS, BASIC WORKERS AND TOTAL WORKERS IN THE SELECTED TOWNS/CITIES DURING 1981.

S. No.	Variables	Delhi		Ghaziabad		Faridabad-Ballabhgarh		Gurgaon	
		Basic	Total	Basic	Total	Basic	Total	Basic	Total
I.	Cultivation (X_1)	.589	.535	.251	.619	.619	.453	.362	.127
II.	Agricultural labour (X_2)	.265	.200	.016	-.248	.394	.405	.669	.867
III.	Livestock & allied Activities (X_3)	.604	.657	.612	.607	.617	.397	.262	.183
IV.	Mining & Quarrying (X_4)	.023	.029	.863	.663	.070	.090	-.175	.016
V.	Manufacturing and Processing (X_5)	.678	.597	.785	.709	.795	.579	.749	.764
VI.	Construction (X_6)	.563	.676	.805	.904	.575	.629	.486	.059
VII.	Trade & Commerce (X_7)	.810	.835	-.244	.245	.678	.348	.185	.712
VIII.	Transport, Storage & Communication(X_8)	.776	.864	.647	.748	.817	.352	.629	.821
IX.	Other Services (X_9)	.509	.806	.001	.493	.459	.764	.517	.946
	Total Workers (X_{10})	.893	1.000	.843	1.000	.534	1.000	.731	1.000

TABLE – 6.3

MULTIPLIER OF BASIC EMPLOYMENT AND ECONOMIC ACTIITIES ON TOTAL EMPLOYMENT IN DELHI DURING 1971 AND 1981.

Variables	Coefficient of Multiplier and Se		Intercept ($X10_4$)		Coefficient of Determination $\bar{R}^2$	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	1.9980*** (0–14)	2.5072*** (0.14)	45.98	42.63	0.6957	0.7922
Basic (B_2)	2.0579*** (0.15)	2.6022*** (0.15)	47.68	43.34	0.6826	0.7825
Occupational Category I	12.1545** (4.97)	59.1712*** (10.02)	115.51	149.73	0.0536	0.2778
II	6.6518 (5.65)	19.0454 (9.99)	112.73	168.16	0.0043	0.0290
III	29.2260*** (5.31)	51.9950*** (6.39)	93.28	99.00	0.2493	0.4253
IV	-76.0760 (126)	33.3451 (120)	123.19	173.62	-0.0073	-0.0106
V	3.0140*** (022)	2.8483*** (0.23)	65.48	84.63	0.5287	0.6114
VI	5.7716*** (0.857)	7.0895*** (0.83)	83.60	102.67	0.3350	0.4510
VII	2.7377*** (0.235)	3.2227*** (0.23)	48.96	51.59	0.6040	0.6937
VIII	5.4817*** (0.58)	6.1915*** (0.39)	56.95	61.72	0.5039	0.7437
IX	1.4864*** (0.16)	1.8305*** (0.14)	55.48	52.98	0.4927	0.6465

Note: *** Significant at 1 percent level of probability.
** Significant at 5 percent level of probability.
Se Standard error of the coefficient.

TABLE - 6.4

ELASTICITY OF BASIC EMPLOYMENT AND ECONOMIC ACTIVITIES ON TOTAL EMPLOYMENT IN DELHI DURING 1971 AND 1981.

Variables	Coefficient of Elasticity and Se		Intercept		Coefficient of Determination ($\bar{R}^2$)	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	0.5807*** (.0450)	0.6743*** (.0470)	4.63	3.98	0.6507	0.6913
Basic (B_2)	0.5669*** (.0434)	0.6577*** (.0480)	4.78	4.15	0.6578	0.6765
Occupational category I	0.0845*** (.0270)	0.2392*** (.0290)	9.09	9.026	0.0885	0.4226
II	0.0731*** (.0270)	0.1750*** (0.370)	9.16	9.28	0.0652	0.2478
III	0.2428*** (0.407)	0.3068*** (.0407)	8.29	8.23	0.2823	0.3601
V	0.4145*** (.0460)	0.4848*** (.0560)	6.10	5.72	0.4698	0.4514
VI	0.3222*** (.0410)	0.3949*** (.0440)	7.33	7.056	0.4035	0.4803
VII	0.5657*** (.0540)	0.6704*** (.0570)	4.944	4.22	0.5506	0.6051
VIII	0.5986*** (.580)	0.6507*** (.0440)	5.166	4.898	0.5439	0.7155
IX	0.4975*** (.05550)	0.6693*** (.0470)	4.38	3.876	0.5670	0.6928

Note: *** Significant at 1 percent level of probability.
** Significant at 5 percent level of probability.
Se Standard of error of the coefficient.

TABLE - 6.5

MULTIPLIER OF BASIC EMPLOYMENT AND ECONOMIC ACTIVITIES ON TOTAL EMPLOYMENT IN GHAZIABAD DURING 1971 AND 1981.

Variables	Coefficient of Multiplier and Se		Intercept		Coefficient of Determination ($\bar{R}^2$)	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	0.6709 (0.294)	1.0010*** (0.241)	26760	21745	00.345	0.670
Basic (B_2)	0.8337** (0.323)	1.0535*** (0.225)	25464	23802	0.415	0.723
Occupational Category						
I	0.5623 (2.247)	0.3249 (4.711)	37229	41217	-0.133	-0.142
II	3.1104 (4.119)	-3.4488 (5.075)	35747	45602	-0.057	-0.072
III	48.2210** (17.934)	51.0165 (25.213)	27330	29431	0.438	0.279
IV	126.7167 (107.180)	254.8833 (108.643)	34997	34085	0.047	0.360
V	1.7922 (0.381)	2.1388*** (0.266)	28029	253727	0.294	0.685
VI	8.1736** (2.423)	13.175** (2.355)	24185	18250	0.565	0.791
VII	-0.1515 (1.072)	0.7529 (1.124)	38732	36075	-0.139	-0.074
VIII	4.3684 (1.447)	5.9919** (2.012)	16990	130228	0.503	0.496
IX	1.1826 (0.683)	2.0961 (1.397)	26225	21880	0.199	0.135

Note *** Significant at 1 percent level of probability.
** Significant at 5 percent level of probability.
Se Standard error of the coefficient.

TABLE - 6.6

ELASTICITY OF BASIC EMPLOYMENT AND ECONOMIC ACTIVITIES ON TOTAL EMPLOYMENT IN GHAZIABAD DURING 1971 AND 1981.

Variables	Coefficient of Elasticity and Se		Intercept		Coefficient of Determination ($\bar{R}^2$)	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	0.4133*** (0.109)	0.7199*** (0.169)	5.201	2.909	0.625	0.683
Basic (B_2)	0.4679*** (0.108)	0.6290*** (0.082)	4.845	3.734	0.690	0.877
Occupational Category						
I	0.0991 (0.623)	0.0469 (0.209)	7.883	8.000	0.157	-0.135
II	0.1393** (0.056)	-0.0930 (0.114)	7.733	8.563	0.391	-0.044
III	0.2842*** (0.057)	0.4393*** (0.129)	7.407	7.002	0.745	0.571
V	0.4255*** (0.117)	0.6041*** (0.088)	5.206	3.992	0.602	0.851
VI	0.3552** (0.118)	0.5884*** (0.127)	6.441	5.329	0.502	0.720
VII	-0.0939 (0.186)	0.4344 (0.233)	8.805	5.449	-0.103	0.236
VIII	0.4511*** (0.109)	0.7396*** (0.173)	5.464	3.768	0.669	0.685
IX	0.2967 (0.195)	0.7672** (0.223)	6.190	3.058	0.140	0.575

Note: *** Significant at 1 percent level of probability.
** Significant at 5 percent level of probability.
Se Standard error of the coefficient.

TABLE 6.7

MULTIPLIER OF BASIC EMPLOYMENT AND ECONOMIC ACTIVITY ON TOTAL EMPLOYMENT IN FARIDABAD-BALLABHGARH COMPLEX DURING 1971 AND 1981.

Variables	Coefficient of Multiplier and Se		Intercept		Coefficient of Determination ($\bar{R}^2$)	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	1.4150*** (0.101)	1.5682*** (0.179)	45886	43848	0.881	0.857
Basic (B_2)	1.4063*** (0.109)	1.5829*** (0.191)	35019	44550	0.864	0.843
Occupational Category						
I	11.4965 (7.492)	11.0254** (4.331)	34830	57348	0.049	0.174
II	- 3.8672 (6.106)	17.2396** (7.764)	43281	60183	-0.024	0.131
III	61.5064*** (18.740)	19.2651** ((8.897))	29403	59238	0.273	0.124
IV	91.1245 (148.952)	39.6428 (87.593)	39609	69633	-0.025	-0.031
V	1.8689*** (0.126)	1.5635** (0.206)	8910	20574	0.839	0.799
VI	25.0610*** (2.231)	12.0157*** (2.971)	13638	44334	0.828	0.371
VII	4.9114*** (1.049)	1.5210 (0.819)	14472	51516	0.446	0.086
VIII	23.7758*** (2.599)	4.6446 (2.496)	1528	52839	0.761	0.089
IX	2.6898*** (0.400)	2.1898 (0.370)	16389	31968	0.629	0.566

Note: *** Significant at 1 percent level of probability.
** Significant at 5 percent level of probability.
Se Standard error of the coefficient.

TABLE - 6.8

ELASTICITY OF BASIC EMPLOYMENT AND ECONOMIC ACTIVITY ON TOTAL EMPLOYMENT IN FARIDABAD-BALLABHGARH COMPLEX DURING 1971 AND 1981.

Variables	Coefficient of Elasticity and Se		Intercept		Coefficient of Determination ($\bar{R}^2$)	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	0.8968*** (0.034)	0.7351*** (0.086)	1.2237	2.411	0.963	0.734
Basic (B_2)	0.7768*** (0.033)	0.7226*** (0.084)	2.114	2.541	0.954	0.735
Occupational Category						
I	- 0.0775 (0.108)	0.1557 (0.077)	7.075	0.726	-0.019	0.106
II	- 0.1166 (0.097)	0.1206 (0.100)	7.140	7.373	0.017	0.016
III	0.3928*** (0.134)	0.2563*** (0.087)	6.482	7.136	0.226	0.227
V	0.7621*** (0.356)	0.7123*** (0.085)	2.249	2.655	0.945	0.726
VI	0.6045*** (0.076)	0.5013*** (0.092)	5.142	5.714	0.704	0.522
VII	0.6163*** (0.170)	0.5739*** (0.161)	1.235	4.264	0.517	0.309
VIII	0.8538*** (0.088)	0.6474*** (0.102)	1.374	4.653	0.782	0.600
IX	0.7683*** (0.071)	0.7218*** (0.083)	2.892	3.217	0.818	0.739

Note: *** Significant at 1 percent level of probability.
Se Standard error of the coefficient.

TABLE - 6.9

MULTIPLIER OF BASIC EMPLOYMENT AND ECONOMIC ACTIVITY ON TOTAL EMPLOYMENT IN GURGAON DURING 1971 AND 1981

Variables	Coefficient of Multiplier and Se		Intercept		Coefficient of Determination ($\bar{R}^2$)	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	2.1877*** (0.262)	2.4024*** (0.622)	6818	7620	0.830	0.498
Basic (B_2)	2.4452*** (0.350)	2.5933*** (0.795)	7232	7860	0.774	0.408
Occupational Category						
I	6.7098** (2.582)	1.9160 (4.161)	9600	16215	0.291	-0.059
II	1.0530 (4.2477)	19.8865*** (3.165)	13575	14940	- 0.072	0.733
III	29.4514 (16.467)	13.0852 (19.479)	12000	15645	0.136	- 0.041
IV	- 184.6427 (305.430)	- 19.0714 (329.99)	13950	16500	- 0.047	- 0.077
V	4.2224*** (0.398)	4.7045*** (0.757)	5025	5250	0.888	0.729
VI	3.2691*** (1.228)	0.5262 (2.434)	12135	16350	0.303	- 0.073
VII	4.0695*** (0.894)	3.4153*** (0.932)	2575	5010	0.585	0.471
VIII	5.5105*** (2.021)	4.8006*** (0.925)	6460	8625	0.315	0.649
IX	2.1752*** (0.231)	1.8604*** (0.176)	- 420	1770	0.863	0.887

Note: *** Significant at 1 percent level of probability.
** Significant at 5 percent level of probability.
Se Standard error of the coefficient.

TABLE - 6.10

ELASTICITY OF BASIC EMPLOYMENT AND ECONOMIC ACTIVITY ON TOTAL EMPLOYMENT IN GURGAON DURING 1971 AND 1981.

Variables	Coefficient of Elasticity and Se		Intercept		Coefficient of Determination ($\bar{R}^2$)	
	1971	1981	1971	1981	1971	1981
Basic (B_1)	0.5389*** (0.065)	0.4046*** (0.137)	3.962	4.773	0.825	0.355
Basic (B_2)	0.5444*** (0.063)	0.4074** (0.153)	4.029	4.797	0.839	0.303
Occupational Category						
I	0.1757*** (0.049)	0.0339 (0.040)	6.404	6.932	0.457	- 0.020
II	0.0854 (0.059)	0.0967** (0.035)	6.635	6.880	0.069	0.323
III	0.1646 (0.095)	0.0601 (0.073)	6.599	6.904	0.126	- 0.024
V	0.6295*** (0.069)	0.5400*** (0.144)	3.706	4.168	0.856	0.484
VI	0.1865*** (0.059)	0.0503 (0.063)	6.243	6.826	0.394	- 0.027
VII	0.7716*** (0.171)	0.4997*** (0.164)	2.784	4.291	0.580	0.370
VIII	0.4951** (0.178)	0.3999*** (0.100)	4.592	5.133	0.324	0.513
IX	1.0092*** (0.091)	0.7855*** (0.106)	0.686	2.078	0.896	0.792

Note: *** Significant at 1 percent level of probability.
** Significant at 5 percent level of probability.
Se Standard error of the coefficient.

CHAPTER - 7

UNIT COST OF CREATING A JOB

The unit cost has been defined as the per capita cost of an employee working either in the central government or in allied public undertakings. The cost has been derived as the sum of (i) direct cost in terms of salaries and (ii) indirect cost in terms of operating and maintenance cost of establishment. The indirect cost also includes the cost of providing housing and the related services and the amenities at the household level. The methodology of computing cost of each component mentioned above has been given in Chapter-2. The present chapter deals with the estimation of direct and indirect costs of an employee in various size-range of establishments and their distribution pattern vis-a-vis the relation of salalry and various components of establishment cost to the total expenditure. The whole strategy is directed to estimate the unit cost of adding an additional person in the total pool of employment that evidently becomes the unit cost of creating a job.

In finding out the unit cost of creating a job, additional increase in salary and establishment expenditure due to increase in the number of employees has been added and then divided by the number of jobs created, after neutralising the inflationary impact in the excess of expenditure (vide Chapter-2). Thus, the per capita direct and indirect cost added to the unit cost of servics and infrastracture finally, gives the unit cost of creating a job. It must be borne in mind that the costs of services and infrastructure are not essentially additional. They are

the common costs on the part of government, since they are equally used by employees both new and old as well as the citizens. This has an important bearing on adding an additional financial burden on the public ex-chequer. Therefore, to make the study realistic, the per capita/unit cost of providing infrastruture and services has also been added to the additional unit/per capita cost of salary and establishment. Further, in order to evoke the distinctive nature of cost and additional cost for the employees of both the central government and public undertakings exclusive evaluation of either has been examined in all the selected towns and cities.

Distribution of Establishment and Employment

In Chapter-2, it has been mentioned that the ratio of central government establishment to public undertakings is 40:60, while the proportion of employment is reverse, i.e., 68:32. It infers that where a bulk of employment has been provided by the central government, the public undertakings have been concentrating on increasing the strength of their establishments.

In the selected establishments of central government and public undertakings in Delhi, the employment statistics based on Annexure-1 have been classified according to broad-size of employment during 1979-80 and 1980-81, and given in the tables 7.1 and 7.2 respectively. For other towns such tables have not been given as they do not reflect any significant picture probably because of only few establishments.

TABLE 7.1

FREQUENCY DISTRIBUTION OF ESTABLISHMENTS AND EMPLOYMENT IN THE SELECTED CENTRAL GOVERNMENT ESTABLISHMENTS IN DELHI ACCORDING TO SIZE OF EMPLOYMENT DURING 1979-80 AND 1980-81

Size of Employment	No. of Establishments		Total Employment	
	1979-80	1980-81	1979-80	1980-81
Below 50	28	26	968	882
51-100	39	40	2771	2816
101-200	24	25	3521	3606
201-300	14	11	3527	2680
301-400	14	16	4806	5514
401-500	4	5	1811	2213
501-1000	12	12	8083	8108
1001 and above	9	9	22700	23765
TOTAL:	144	144	48187	49584

Delhi

An analysis of the table - 7.1 reveals that there has been a net increase of 1397 employees in the central government as against the gross increase of 1735 employees (Chapter-2) in 144 establishments employing 49,584 persons. It indicates that employment has been created at the rate of 3.6 percent in the central government. However, in the case of public undertakings, the net increase of employment between 1979-80 and 1980-81 has been of the order of 2413 as against the gross increase of 2542 employees in 55 establishments employing 45,262 persons (table - 7.2). Thus, in the creation of new jobs, public undertakings have ben ahead of central government, as the rate of job creation was 5.9 percent.

TABLE - 7.2

FREQUENCY DISTRIBUTION OF ESTABLISHMENTS AND EMPLOYMENT IN THE SELECTED PUBLIC UNDERTAKINGS IN DELHI ACCORDING TO SIZE OF EMPLOYMENT DURING 1979-80 AND 1980-81

Size of Employment	No. of Establishments		Total Employment	
	1979-80	1980-81	1979-80	1980-81
Below 50	19	19	438	465
51-100	3	3	187	187
101-200	10	9	1677	1520
201-300	9	9	2213	2236
301-400	2	1	729	350
401-500	1	3	424	1327
501-1000	3	3	2049	2037
1001 and above	8	8	35132	37140
TOTAL	55	55	42849	45262

Among the central government establishments railways, falling in the size-group of 1000 and above, has provided jobs to the maximum number of persons i.e. 9,332 during 1979-80 and 10120 during 1980-81. In the public sector, Delhi Transport Corporation has become one of the highest employment giving body employing 23,083 persons in 1979-80 and 24,600 in 1980-81. The jobs were created at the rate of 8.4 percent (more than 5.9 percent in aggreate of public undertakings) and also in comparison to the second biggest employer (Railways) which created jobs at the rate of 6.6 percent (more than 3.6 percent in aggregate of central government). It is, therefore, concluded that the transport sector has been expanding and providing maximum number of employment to cater to the needs of growing population of transport services. But, it

is worth noting here that while Delhi Transport Corporation is basically meant for carrying people and providing commutation facilities mainly within Delhi, Railways, besides being a public carriage, also functions as enterprise carrying goods and passengers, both. The railways have provided a good number of white collar jobs both in the headquarter at Baroda House and in the Railway Board, which are not area specific to meet the needs of transportation.

Ghaziabad

In the seven central government establishments of Ghaziabad, there has been job creation at the rate of 16.5 percent during the reference period. The employment has increased from 650 in 1979-80 to 738 in 1980-81. The main reason of such a fantastic increase in jobs is due to the rapid expansion of Advanced Level Telecommunication Centre, which per se recorded an increase in number of jobs from 316 in 1979-80 to 403 in 1980-81 giving a growth rate of 27.5 percent in job creation. The other six establishments employed 335 persons, and where jobs were created at the rate of 6 percent. The 12 public undertakings employing 408 persons, during 1980-81 have created jobs at the rate of 6.3 percent (Table - 7.3). These public undertakings are mostly banks employing a very small number of people. The exception being one big establishment employing 127 persons.

Faridabad - Ballabhgarh Complex

In 18 central government establishments of Faridabad-Ballabhgarh complex, employing 3,623 persons during 1980-81, the rate of job creation was 4.4 percent. However, the biggest two esablishments having 1158 and 960 persons on their rolls, added only 22 and 18 new jobs, respectively. The eleven public undertakings employing 875 persons

during 1980-81, the rate of job creation was 5.2 percent (Table - 7.3). The maximum employment strength of an establishment in public sector which has 282 employees during 1980-81, have witnessed a marginal increase of 7 units only.

TABLE - 7.3

RATE OF JOB CREATION DURING 1979-80 AND 1980-81 IN SELECTED TOWNS AND CITIES

Town/City	Rate of Job Creation (in percent)	
	Central Government	Public Undertakings
Delhi	3.6	5.9
Ghaziabad	16.5	6.3
Faridabad-Ballabhgarh	4.4	5.2
Gurgaon	5.4	10.3

Gurgaon

In the four central government establishments at Gurgaon, which employed only 116 persons (i.e. smaller units) during 1980-81, created jobs at the rate of 5.4 percent, while in eight public undertakings employing 257 persons employment strength increased by 10.3 percent (Table - 7.3). Thus, Gurgaon is having comparatively less number of establishments and, that too, with smaller size of employment.

Costs from Total Expenditure

Expenditure for the financial years 1979-80 and 1980-81 has been collected from sampled establishments on different heads as given in Annexure-1. Office expenditue included mainly stationery, furniture,

electricity etc., while other expenditure depended on the nature of establishments covering mainly miscellaneous items. In computing per capita cost, these two items have also been included because, while former essentially depends on employment, the latter on the strength of employment, covering major part of the expenditure on medical benefits, recreational, educational allowance, leave travel grants etc.

In the Table - 7.4 and 7.5, an assumed total expenditure of Rs.100 has been divided into salary, travelling allowance, office expenditure,

TABLE - 7.4

PERCENTAGE DISTRIBUTION OF COST OF CENTRAL GOVERNMENT ESTABLISHMENT IN DELHI DURING 1980-81

Size of Employment	Salary	Travelling Allowance	Office Expenditure	Office Rent	Other Expenditure	Total Establishment Cost (3 to 6)	Total Expenditure
1	2	3	4	5	6	7	8
Below 50	64.47	3.50	8.70	1.97	21.36	35.53	100.00
51-100	78.09	2.92	8.60	4.89	5.51	21.91	100.00
101-200	79.78	2.71	9.45	0.95	7.12	20.22	100.00
201-300	69.11	3.61	22.29	-	4.98	30.89	100.00
301-400	72.36	4.73	16.65	3.27	2.99	27.64	100.00
401-500	55.81	4.01	11.86	1.33	26.98	44.19	100.00
501-1000	65.86	2.66	11.66	12.93	6.89	34.14	100.00
1001 and above	85.23	1.85	8.39	1.34	3.19	14.77	100.00
Total	75.57	2.76	11.16	4.06	6.45	24.43	100.00

TABLE - 7.5

PERCENTAGE DISTRIBUTION OF COST OF PUBLIC UNDERTAKINGS IN DELHI DURING 1980-81

Size of Employment	Salary	Travelling Allowance	Office Expenditure	Office Rent	Other Expenditure	Total Establishment Cost (3 to 6)	Total Expenditure
1	2	3	4	5	6	7	8
Below 50	57.66	3.42	17.56	15.83	5.53	42.34	100.00
51-100	33.33	2.99	22.14	6.74	34.81	66.67	100.00
101-200	22.47	5.40	12.73	3.98	55.42	77.53	100.00
201-300	40.95	5.24	28.81	10.74	14.25	59.05	100.00
301-400	54.48	8.19	22.03	8.33	6.98	45.52	100.00
401-500	57.03	7.15	20.45	14.75	0.63	42.97	100.00
501-1000	8.37	0.18	5.15	0.47	25.83	91.63	100.00
1001 and above	73.40	4.28	13.28	2.56	6.48	26.60	100.00
Total	41.15	3.05	11.81	3.15	40.84	58.85	100.00

office rent and other expenditure and given by size of employment both for central government establishments and public undertakings, respectively, during the financial year of 1980-81. The same presentation has not been possible for other three towns although, such aggregate distribution for each place has been given in the Table - 7.6. Its pattern of distribution could be seen vide Fig.7(a).

It is interesting to note that a little more than 75 percent of the total expenditure in the central government establishments of Delhi, has gone towards salary and the payments of pecuniary remuneration to the employees, while the rest has been spent on rent, running and

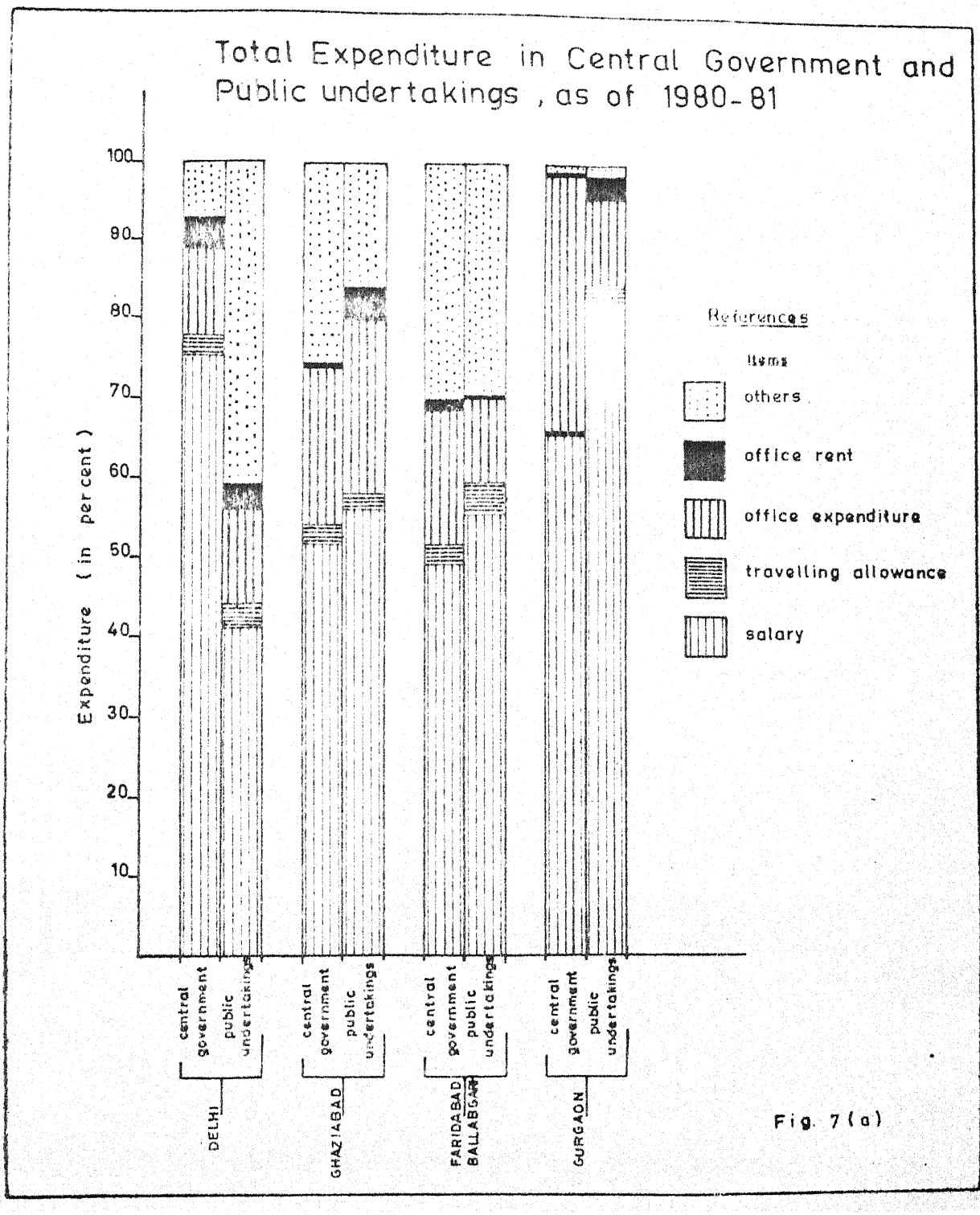
Total Expenditure in Central Government and Public undertakings , as of 1980-81
Expenditure (in per cent)
100
90
80
70
60
50
40
30
20
10
References
Items
others
office rent
office expenditure
travelling allowance
salary
central government
public undertakings
DELHI
GHAZIABAD
FARIDABAD
BALLABGARH
GURGAON

Fig. 7 (a)

TABLE - 7.6

PERCENTAGE DISTRIBUTION OF COST IN THE SELECTED TOWNS DURING 1980-81

Town	Salary	Travelling Allowance	Office Expenditure	Office Rent	Other Expenditure	Total Establishment Cost (3to6)	Total Expenditure
Delhi							
(i) Central Govt.	75.27	2.76	11.16	4.06	6.45	24.43	100.00
(ii) Public Undertakings	41.15	3.05	11.81	3.15	40.84	58.85	100.00
Ghaziabad							
(i) Central Govt.	50.99	2.58	20.20	0.54	25.70	49.01	100.00
(ii) Public Undertakings	55.67	2.20	21.91	4.18	16.05	44.33	100.00
Faridabad-Ballabhgarh							
(i) Central Govt.	50.49	2.40	17.20	1.40	28.51	49.51	100.00
(ii) Public Undertakings	55.21	3.70	10.71	0.49	29.89	44.79	100.00
Gurgaon							
(i) Central Govt.	71.30	0.61	26.52	0.33	1.24	28.70	100.00
(ii) Public Undertakings	82.55	1.81	10.87	2.92	1.85	17.45	100.00

maintaining the establishment, etc. (establishment cost). In the establishment cost, the component of rent was 4 percent and travelling allowance 2.76 percent, an amount quite low, while the component of office expenditure was 11.16 percent and other expenditure 6.45 percent.

In public undertakings the component of salary has been very low, 41 percent only as compared to the central government establishments, while the cost of establishment has been comparatively, on a higher side, at 59 percent. Of the four components of establishment cost, the percentage share of travelling allowance, office expenditure, and office rent, has been nearly the same as in central government but the other expenditure, such as medical, recreational, educational allowance, grants, etc. has touched the limit of 41 percent, nearer to the proportion of salaries (Table - 7.5). The obvious conclusion that emerges from this analysis is that the public undertakings have been spending more money in giving perks and incentives to its employees, besides their miscellaneous expenses.

Table - 7.4 states that component of salary in central government establishments of Delhi has been uniformly distributed between 65 and 80 percent in various sizes of establishment excluding the size-groups of 401-500 and 1000 and above employees. In the former, salary constitutes 56 percent of the total expenditure, while in the latter, it is 85 percent. The proportion of office expenditure has been declining from 22 percent to 8 percent from the size-group of 201-300 and above employees. In increasing the size of employment upto 300, the proportion of office expenditure rises in the central government, and beyond 300 employees, the cost goes on declining uniformly. This level of employment, therefore, serves as a critical point upto which the cost goes on increasing and beyond, once the critical level of employment is

attained, the cost starts diminishing (see Figure-7(b). Expenditure on other account has not given any conclusive trend, apparantly, because it has included occasional expenditures like capital investment etc. The total establishment cost has given the same trend commensurate to the office expenditure excluding the establishments in the size-range of 401-500 and 501-1000. In the former, while the other expenditure has increased unexpectedly from 3 percent to 27 percent dominating the total establishment cost, in the latter, office rent component has been much higher at 13 percent though the second highest being 5 percent in the establishments in the size-range of 51-100. It is because of this that the curve of establishment cost in the figure 7(b) has been fluctuating. The above analysis shows the inverse relation of office expenditure, the chief component of establisment cost, with that of employment in the central government. This also holds true for establishment cost, had there been no irregular expenditure like captial expenditure or higher rent, which is not directly related to the working employees. Thus, a relation has been established between the expenditure incurred on the part of establishment and employment.

$$Oe = f\ (1/E)$$

$$Oe = f\ (Ee)$$

Hence, $$Ee = f\ (1/E)$$

Where, Oe is the office expenditure, E is the employment level,and Ee is the establishment expenditure.

An analysis of the Table - 7.5 indicates that salary and establishment cost and their components in public undertakings do not have any relation with the level of employment in any size of employment, as it has been observed in central government

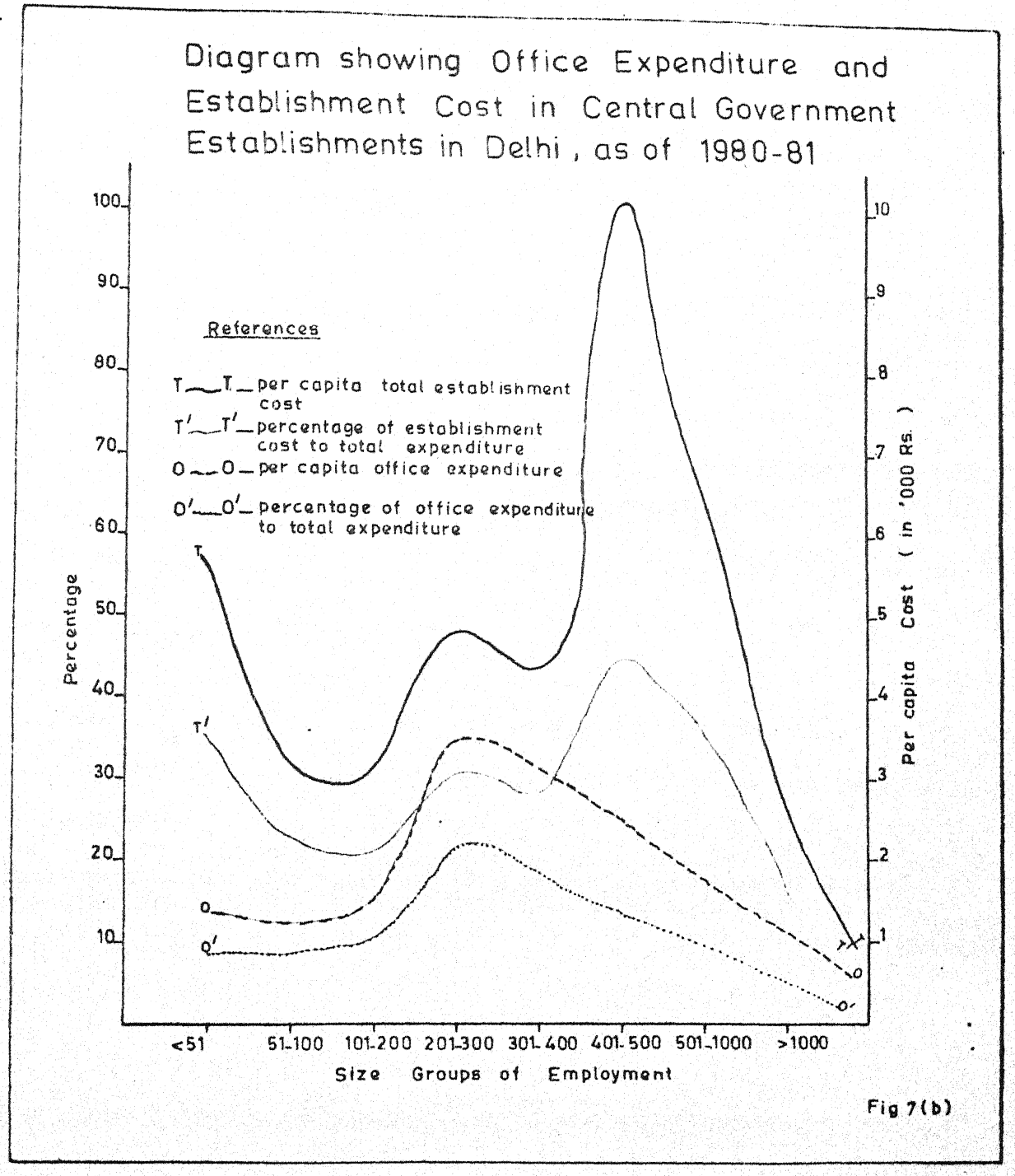
Diagram showing Office Expenditure and Establishment Cost in Central Government Establishments in Delhi, as of 1980-81
References
T—T— per capita total establishment cost
T'—T'— percentage of establishment cost to total expenditure
O—O— per capita office expenditure
O'—O'— percentage of office expenditure to total expenditure
Percentage
Per capita Cost (in '000 Rs.)
100
90
80
70
60
50
40
30
20
10
10
9
8
7
6
5
4
3
2
1
T
T'
O
O'
<51
51-100
101-200
201-300
301-400
401-500
501-1000
>1000
Size Groups of Employment

Fig 7(b)

establishments. The greater fluctuation noticed in the proportion of salary, ranging from 8 to 73 percent, is mainly because of rising establishment cost e.g., in the size-group of 501-1000, the cost on salary is 8.3 percent, while the establishment cost is 91.63 percent for the single reason that the other expenditure dominating the establishment cost, to the extent of 86 percent. Such unusual high expenditure in the public undertakings includes, besides perks and facilities, the expenses on advertisement, capital investments. The share of office expenditure has also been fluctuating and does not give any such trend which has been established in the case of central government establishments. And, therefore, the reverse relation between employment and establishment cost has not been established in public undertakings.

The establishment expenditure has been mounting even if the employment in certain public undertakings declined. The establishment expenditure of such undertakings, where the employment did not observe any increase or remained stationary, increased by 24 percent, while for the establishments, where the employment has shown an increase, the expenditure has also increased by 17 percent. Inversely, in the central government establishments, where the employment was created the cost of establishments increased by 11 percent, and where the employment decreased or remained stationary by 8 percent only.

Ghaziabad and Faridabad-Complex

Both in central government and public undertakings, there is a marked similarity in the proportion of salary and establishment cost, the former has a ratio of 51:49 and the latter 56:44 (Table - 7.6). It

is very interesting to note that these two towns have been very close in spending money proportionately both on salary and establishment.

In the Central Government establishments at Ghaziabad, the proportion of office expenditure (20 percent) is more than Delhi (11 percent) and Faridabad Complex (17 percent) and other expenditure being 26 percent is also relatively higher than Delhi (6.5 percent). These higher proportions are mainly because of the Advanced Level Telecommunication Training Centre, which has constructed its own multi-storied building, maintain beautiful lawns and parks, provided residential quarters to its employees within the premises and spent more on capital items. The proportion of office expenditure and other expenditure might have increased more, had the ALTTC not employed more experienced and qualified technical staff (getting more salary).

The share of 22 percent office expenditure in public undertakings at Ghaziabad is more than the office expenditure in the public undertakings of the other three towns. The rent component is 4.2 percent and it is the highest because most of the public undertakings do not have their own buildings. The share of other expenditure which is 16 percent is proportionately less than 41 percent in Delhi and 28.15 percent in Faridabad-Ballabhgarh, probably because expenditure on perks, incentives, and capital investments might have not been commensurate with Delhi and Faridabad complex.

The observations of central government establishments in Ghaziabad also hold true in the case of Faridabad Complex. But, an important point to be noticed is that the proportion of office expenditure in public undertakings in Faridabad complex is 10.7 percent, wich is nearly half of the office expenditure in Ghaziabad, while other expenditure in

Faridabad complex is 30 percent and more than the office expenditure. The rent component is too less i.e. about 0.5 percent in Faridabad Complex as compared to 4.2 percent in Ghaziabad, indicating that most of the undertakings are owning their buildings or pay a very nominal amount of rent. This has a bearing on the possibility of more expansion in the public undertakings of Faridabad Complex because of more availability of land. It has given sufficient scope for increasing the expenditure on miscellaneous heads including perks and incentives to their employees.

Gurgaon

Like Delhi, the central government establishments in Gurgaon have spent 71 percent of the total expenditure on salary, while 29 percent on establishment cost (Table -7.6). The major amount of the establishment expenditure has gone under the head of office-expenditure amounting to 26.5 percent, which is the maximum share of office-expenditure in all other towns and cities (including public undertakings). However, this should not be interpreted that office-expenditure has been the maximum in absolute term in all the towns. This proportion seems to be highest because of (i) the size of employment is very small[1] and (ii) the proportion of other expenditure is 1.24 percent, almost negligible and which has enhanced the ratio of office-expenditue. The expenditure on 'other' heads is lower, because of inadequate space and lack of the facilities enjoyed by other towns.

The establishment cost in public undertakings at Gurgaon is 17.45 percent, which is less than the establishment cost of central government

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1. Of the four central government establishments, three are in the size-range of 50 and below employment and the fourth one employs on ly 54 persons.

as well as public undertakings in all other towns and cities. The expenditure on salary is 82.55 percent of the total expenditure, while office-expenditure is only 10.87 percent. The main reason for the low establishment cost of public undertakings in Gurgaon is because of the fact that,

> firstly, with the exception of the State Bank of India, no other public undertakings (under sample) has its own building. The other establishments also have a very limited number of employees, with the result even the essential expenditure at the office level has not been incurred, which could have raised the establishment cost.
>
> secondly, the expansion of banking services has been confined at the office level only. Thus the perks and incentives which could have increased the miscellaneous expenditure have been curtailed. The limited expansion in the banking services has been localised, because of the domination of trade and commerce activity (see Chapter 4) instead of manufacturing and other industries, which demand more of banking and insurance services, as in other towns.

Per Capita Cost: The per capita cost of salary, office expenditure, and establishment expenditure has been calculated for the reference period 1980-81 in respect of each town and city. Further, the exclusive calculation of per capita office expenditure has been done to substantiate its inverse relation with the size of employment in the case of central government establishments in Delhi, already established in the foregoing analysis. The per capita average cost has been worked out irrespective of the number of four groups of employees.

Delhi

In Delhi, both in central government establishments and public undertakings, the per capita cost has been computed by size of employment, broadly divided into eight groups. Table - 7.7 gives the

TABLE - 7.7

DISTRIBUTION OF PER CAPITA COST OF CENTRAL GOVERNMENT ESTABLISHMENTS IN DELHI BY SIZE OF EMPLOYMENT AS OF 1980-81

(Rupees thousands)

Size of Employment	Per Capita Cost of			
	Salary	Office Expenditure	Establisment Expenditure	Total Expenditure (2+4)
1	2	3	4	5
Below 50	10.22	1.37	5.63	15.85
51-100	11.26	1.24	3.16	14.42
101-200	11.78	1.40	2.99	14.77
201-300	10.69	3.45	4.78	15.47
301-400	11.14	2.56	4.26	15.39
401-500	12.77	2.41	10.11	22.88
501-1000	12.17	2.15	6.31	18.48
1001 and above	10.49	1.03	1.82	12.30
Total (Average)	11.08	1.67	3.58	14.66

per capita cost of central government establishments in Delhi. The cost of salary has been almost uniformly distributed between Rs.10,220 to Rs.12,770 in the various size of employment indicating that the ratio of four different groups of employment should have been equally distributed in the various sizes of employment. This speaks of the proportionate hierarchical symmetry in the bureaucratic structure of the central government establishments in Delhi. The per capita salary, on an average works out to Rs.11,080 whereas the per capita office expenditure as Rs.1,670, irrespective of any group and size of employment. A look

on office expenditure in the Table - 7.7 indicates the same diminishing trend of office-expenditure already analysed in the distribution of cost (Table - 7.4). This pattern of office expenditure has been presented in the figure-7(c) where the critical level of per capita office expenditure comes to the extent of Rs.3,450 and the minimum Rs.1,030 in the employment size of 1,000 and above. The per capita establishment cost has been fluctuating, ranging between Rs.1,820 to Rs.10,110 due to lack of uniformity in the pattern of distribution of other expenditure caused by some irregular and unusual expenses disturbing the trend of diminishing cost. The per capita total expenditure at office level given in the Table - 7.7 is the sum of direct cost and indirect cost excluding services. The average per capita total expenditure of Rs.14,660 varies between Rs.12,300 and Rs.22,880 in various sizes of employment.

Per Capita Cost of Public Undertakings

The per capita cost of public undertakings as given in Table -7.8 indicates that although the per capita average salary in public undertakings is Rs.11,460, it is nearly the same as in central government establishments i.e. Rs.11,080 but its pattern of distribution in various sizes of employment has not been uniform. It varies from Rs.10,000 in the employment size of 1000 and above to Rs.19000 in the employment size of 501-1000. This leads to the conclusion that the public undertakings do not observe the proportionate hierarchical structure of different groups of employees as observed in central government establishments. In fact, the structure of employment in public undertakings depends upon the field of operation as well as the location of their establishments. Thus, in the employment size of 1,000

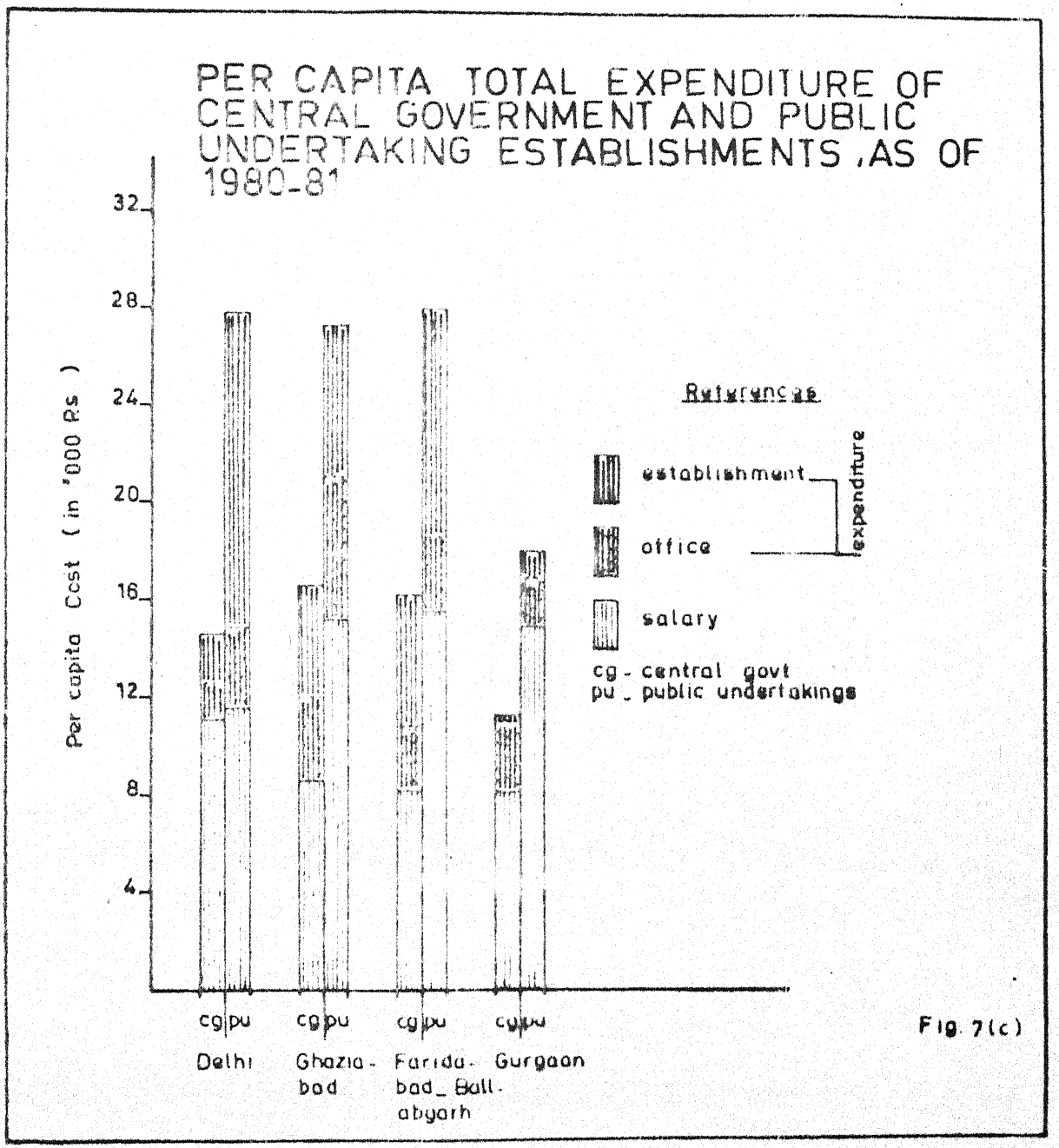
PER CAPITA TOTAL EXPENDITURE OF CENTRAL GOVERNMENT AND PUBLIC UNDERTAKING ESTABLISHMENTS, AS OF 1980-81
Per capita Cost (in '000 Rs)
32
28
24
20
16
12
8
4
References
establishment
office
salary
expenditure
cg - central govt
pu - public undertakings
cg pu
Delhi
Ghazia-bad
Farida-bad
Ball-abgarh
Gurgaon

Fig. 7(c)

above, the average per capita salary of Rs.10,100 approximates to total per capita salary both in public undertakings and central government establishments. In certain size groups of employment, it is too high e.g. approximately Rs.17,000 in the employment size below 50, 101-200, 201-300 and 401-500 and Rs.19,000 in the employment size 501-1000.

TABLE -7.8

DISTRIBUTION OF PER CAPITA COST OF PUBLIC UNDERTAKINGS IN DELHI BY SIZE OF EMPLOYMENT, AS OF 1980-81

(Rupees in thousands)

Size of Employment	Per capita cost			
	Salary	Office Expenditure	Establishment Expenditure	Total Expenditure (2+4)
1	2	3	4	5
Below 50	17.47	5.32	12.83	30.30
51-100	12.89	8.57	25.79	38.68
101-200	17.38	9.85	59.97	77.35
201-300	17.47	12.29	25.20	42.67
301-400	14.75	5.97	12.33	27.08
401-500	17.59	6.31	13.26	30.85
501-1000	19.08	11.74	208.92	228.00
1001 and above	10.10	1.83	3.66	13.76
Total (Average)	11.46	3.29	16.39	27.85

Although, the average per capita office expenditure in public unertakings works out to Rs.3,290, the amounts which is twice the central government establishments. It varies significantly in different sizes of employment. But the per capita office-expenditure is high only in those establishments, where the per capita expenditure on salary is

high and vice-versa. It suggests that in public undertakings, the per capita salary and per capita office expenditures are though directly related, yet, they do not reflect any trend of diminishing nature. Moreover, the per capita office-expenditure in public undertakings is more than central government establishments.

The aggregate per capita establisment cost of Rs.16,390 in public undertakings is about five times more than what has been worked out for central government establishments and also ununiformly distributed in various sizes of employment, ranging from Rs.3,660 to more than Rs.2 lakhs. The fabulous expenditure of the order of Rs.2 lakhs is not unimaginative. This substantiates our earlier observation that public undertakings are paying more attention on its field-expansion by giving more perks and facilities and also investing more money on capital and other goods. The mid-term appraisal of the Sixth Five Year Plan also states and substantiates our observation that, "The year 1980-81 witnessed a good recovery from the low base of 1979-80, inspite of a very high inflation .....This was made possible by a sizeable increase in public sector investment....."[2]

Ghaziabad

The average per capita salary of central government establishments in Ghaziabad is Rs.8,470 (Table - 7.9), which is less than the per capita salary of central government establishments in Delhi. But, both the per capita office expenditure and per capita establishment cost in Ghaziabad is more than two-fold as compared to Delhi probably because of the Advanced Level Telecommunication Training centre which is expected

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2. The Economic Times, August 31, 1983.

to rise further because of the expansion policy of the Post and Telegraph Department.

TABLE - 7.9

DISTRIBUTION OF PER CAPITA COST IN CENTRAL GOVERNMENT ESTABLISHMENTS AND PUBLIC UNDERTAKINGS, AS OF 1980-81

(Rupees in thousands)

Town/City	Sector	Salary	Office Expenditure	Establishment Expenditure	Total Expenditure (3+5)
1	2	3	4	5	6
Delhi	Central Govt.	11.08	1.67	3.58	16.66
	Public Undertakings	11.46	3.29	16.39	27.84
Ghaziabad	Central Govt.	8.47	3.35	8.14	16.61
	Public Undertakings	15.20	5.98	12.11	27.31
Faridabad-Ballabhgarh	Central Govt.	8.14	2.77	7.98	16.12
	Public Undertakings	15.49	3.01	12.57	28.06
Gurgaon	Central	8.05	2.99	3.24	11.29
	Public Undertakings	15.03	1.98	3.18	18.21

Even in public undertakings, the per capita salary of Rs.15,200 and per capita office expenditue of Rs.5,980 are more than Delhi, whereas the per capita establishment cost of Rs.12,110 in these undertakings is less than Delhi. Perhaps this might be one of the reasons for the State Bank of India, Delhi Region to have shifted its printing and stationery cell from Delhi to Ghaziabad.

Faridabad-Ballabhgarh Complex

The per capita salary and per capita establishment costs of central government establishments in Faridabad-complex are the same as in

Ghaziabad. But, the per capita office expenditure in Faridabad-complex is Rs.2,770 which is less than Rs.3,350 in Ghaziabad but greater than Rs.1,670 in Delhi as revealed by the Table - 7.9.

Public undertakings have also observed the similar characteristics, as stated for the central government in regard to per capita salary and per capita establishment cost. It suggests that the per capita salary and the per capita establishment cost, both are equal in Ghaziabad and Faridabad Complex. But the per capita cost of office-expenditure in Faridabad complex, Rs.3,000 is only half of Ghaziabad.

Gurgaon

The per capita salary cost of Rs.8,000 in central government establishments in Gurgaon is approximately the same as in Ghaziabad and Faridabad-complex, but less than Rs.11,000 in Delhi (Table-7.9). Interestingly, the per capita establishment cost of Rs.3,240 in Gurgaon is least among the three towns of National Capital Region excepting Delhi. Even the total per capita expenditure of Rs.11,300 in Gurgaon is the minimum as compared to per capita expenditure elsewhere.

In public undertakings also, the per capita salary of Rs.15,000 in Gurgaon is the same as in the other two towns of Faridabad Complex and Ghaziabad but more than Delhi. Gurgaon is the town where the per capita total expenditure in public undertakings is the minimum of Rs.18,210. It is less than by at least Rs.9,000 as compared to other towns because the per capita office expenditure of Rs.1,980 and per capita establishment cost of Rs.3,180 is one-fourth of the total expenditure. Both are well below the per capita cost in other places. This suggests that public undertakings in Gurgaon have neither followed the expansion

policy nor added capital goods to the extent, the other three towns have done.

Regression Coefficients of Cost

The basic objective of this analysis is to know the extent of increase in total per capita expenditure for a unit increase (say Rs.100) in the per capita cost of salary and other cost. To measure this relationship regression coefficients of linear and Cobb-Douglas have been used.

Delhi

Regression coefficients and elasticity coefficients of the central government establishment and public undertakings for Delhi as given in the Table - 7.10 indicate that the per capita total expenditure as borne by a very weak coefficient of determination $\bar{R}^2$, suggests that whatever be the amount of total expenditure, salary constitutes such an important part that it has to be paid. It also suggests that any establishment, whether in central government or in public undertakings, may curtail other expenditures, if necessary, in order to avoid deficit, but his salary cannot remain undisbursed. If the per capita salary increases by Rs.100, the per capita total expenditue rises by Rs.105 only in the central government, while in public undertakings, the total expenditure rises by Rs.380, as shown in the table by regression coefficients. More increase in the per capita total expenditure of public undertakings seems to be in consonance with our earlier observation of more per capita cost in public undertakings. Moreover, the per capita salary in public undertakings has also been highly fluctuating, as the coefficient of elasticity of per capita salary to the total expenditure > 1, while it is uniform in central government, elasticity < 1.

TABLE - 7.10

REGRESSION COEFFICIENTS OF PER CAPITA TOTAL EXPENDITURE ON PER CAPITA COST IN DELHI AS OF 1980-81

Cost	Sector	LINEAR			COBB-DOUGLAS		
		Constant	Regression Coefficient	$\bar{R}^2$	Constant	Elasticity	$\bar{R}^2$
Salary	i) Central Government	3707.30	1.051*** (.189	.172	.723	.950*** (.087)	.448
	ii) Public Undertaking	13333.48	3.795** (1.600)	.079	.402	1.20*** (.181)	.403
Travelling Allowance	i) Central Government	13707.23	3.532*** (.996)	.075	8.967	.113*** (.015)	.270
	ii) Public Undertaking	39425.25	3.950 (2.798)	.018	9.623	.119*** (.038)	.138
Office Expenditure	i) Central Government	13161.37	1.305*** (.254)	.151	8.536	.151*** (.017)	.341
	ii) Public Undertaking	35347.83	1.573 (1.032)	.024	9.437	.120*** (.034)	.173
Office Rent	i) Central Government	15059.82	.845*** (.256)	.064	9.498	.043*** (.011)	.079
	ii) Public Undertaking	42592.29	1.315 (2.923)	.015	9.863	.070*** (.034)	.126
Other Expenditure	i) Central Government	14141.16	.976*** (.068)	.587	9.397	.045*** (.009)	.126
	ii) Public Undertaking	28792.18	1.021*** (.030)	.955	10.112	.042 (.024)	.034

*** indicates significance at 1 percent level of probability.
** indicates signficance at 5 percent level of probability.
Figures within parentheses indicate standard errors.

The per capita travelling allowance is also totally independent of the total expenditure as evident from the coefficient of determination (R^2) which is only 8 percent in central government and 2 percent in public undertakings. But in central government establishments the per capita total expenditure will rise by Rs.350, for a Rs.100 rise in the per capita travelling allowance. In public undertakings no definite conclusion could be drawn on the extent of increase in the per capita total expenditure for a unit increase in the per capita cost of travelling allowance because of insignificant result.

The per capita office-expenditure and per capita office-rent in the central government establishments are also independent of per capita total expenditure and this is not surprising. In fact, this again substantiates our anticipation that (i) office expenditure in central government establishments has been minimum and hence it could be assumed as the minimum requirement for employing a person and (ii) the law of diminishing cost operates in the office expenditure of central government establishments. Further, office-rent is paid if establishment does not own its building and the owner will have to be paid the rent in the same manner as an employee gets his salary.

By increasing per capita office expenditure by Rs.100, the per capita total expenditure in central government will rise by Rs.130, but, surprisingly in the case of office-rent, the per capita total expenditure will rise by Rs.85 only. This might have been so because of government's reluctance to increase office-rent, and if there comes any such case it would like to maintain its level of total expenditure either by curtailing any expenditure other than salary, travelling allowance, and office expenditure or by any other means. The inelastic

Cobb-Douglas coefficient (elasticity < 1) in both cases reveal that although an increase in per capita cost has increased the total expenditure, proportionately it has been less.

Lastly, it is only the per capita other expenditure in both the sectors which has been dependent on the per capita total expenditure. The relatioship is very strong in both the cases as the coefficient of determination (R^2) is 59 percent in the case of central government establishments and 96 percent in public undertakings. Further, in both the sectors, the per capita total expenditure also rises, proportionately more, to an increase in the per capita other expenditure. This suggests that per capita other expenditure which constitutes a major share of the cost increase, depends on the level of per capita total expenditure. In other words, in order to maintain the level of total expenditure, some possible adjustment in other expenditures is done, e.g. by curtailing it, ceteris paribus to make the level of total expenditure unaffected in the event of any rise in office rent, etc.

Ghaziabad

An attempt has been made through regression analysis to measure the relationship between the per capita office expenditure and per capita other expenditure in central government establishments of Ghaziabad (Table - 7.11). The other components of cost have not shown significant results even upto 5 percent level of probability. Therefore both the per capita office expenditure and the per capita other expenditure, have shown a strong correlation with the per capita total expenditure. The coefficient of determination shown by high R^2, is 95 percent in the former case and 82 percent in the latter. It indicates the total

TABLE - 7.11

I EGRESSION COEFFICIENT OF PER CAPITA TOTAL EXPENDITURE ON PER CAPITA COST IN GHAZIABAD AS OF 1980-81

Cost	Sector	LINEAR			COBB-DOUGLAS		
		Intercept	Coefficient of Regression	$\bar{R}^2$	Constant	Elasticity	$\bar{R}^2$
Salary	i) Central Govt.	6335.40	2.300	.142	2.28	1.295	.205
			(1.629)			(.811)	
	ii) Public Undertaking	29688.86	-.113	-.099	9.038	.116	-.088
			(1.170)			(.345)	
Travelling Allowance	i) Central Govt.	11511.84	0.529	.199	9.04	.048	-.186
			(8.545)			(.197)	
	ii) Public Undertaking	31703.39	-5.930	-.089	9.875	.041	-.097
			(19.479)			(.265)	
Office Expenditure	i) Central Govt.	6614.93	2.915***	.945	6.37	.407***	.744
			(.285)			(.094)	
	ii) Public Undertaking	17153.62	1.816	.224	8.564	.191	.198
			(.888)			(.099)	
Office Rent	i) Central Govt.	12295.12	-4.930	-.136	9.35	-.019	-.160
			(9.328)			(.061)	
	ii) Public Undertaking	26299.17	1.148	-.094	10.138	-.001	-.099
			(5.272)			(.061)	
Other Expenditure	i) Central Govt.	9284.29	1.528***	.823	9.18	.028	-.071
			(.284)			(.036)	-.071
	ii) Public Undertaking	2134.70	1.037***	.862	9.840	.058***	.235
			(.124)			(.018)	

Note: *** denotes significance at 1 percent level of probability.
Figures within parentheses indicate standard errors.

dependence of per capita office expenditure/other expenditure on per capita total expenditure. An increase of Rs.100 in per capita office expenditure, will increase the per capita total expenditure by Rs.292, and a similar increase in the per capita other expenditure, will escalate the per capita total expenditure by Rs.153. Further, it is also significant to note that although the per capita office-expenditure increases the level of per capita total expenditure, it does not increase it proportionately as shown by the positive coefficient of elasticity but less than unity.

In case of public undertakings in Ghazaiabad only the per capita other expenditure has shown significant results with a high degree of relation with per capita total expenditure to the extent of 86 percent suggesting the total dependence of per capita other expenditure on per capita total expenditure. It has also been estimated that by increasing Rs.100 in per capita other expenditure, the per capita total expenditure increases by Rs.104. Moreover, the positive coefficient of elasticity but less than unity indicates that for a unit increase in the per capita other expenditure increases the total expenditure but proportionately less.

Faridabad-Ballabhgarh Complex

In Faridabad complex, the per capita cost of each component of expenditure excluding salary in central government has almost been fully dependent on total per capita expenditure denoted by high value of $\bar{R}^2$ which ranges from 90 percent to 99 percent (Table -7.12). But the salary has also affected the total expenditure by 37 percent. As a consequence an increase of Rs.100 in per capita salary, the per capita total expenditure has risen by Rs.594, and the similar increase in per

TABLE - 7.12

REGRESSION COEFFICIENT OF PER CAPITA TOTAL EXPENDITURE ON PER CAPITA COST IN FARIDABAD-BALLABHAGARH AS OF 1980-81

Cost	Sector	LINEAR			COBB-DOUGLAS		
		Intercept	Coefficient of Regression	$\bar{R}^2$	Constant	Elasticity	$\bar{R}^2$
Salary	i) Central Govt.	31599.28	5.943*** (1.803)	.367	1.623	1.028*** (.262)	.457
	ii) Public Undertaking	6869.95	1.391 (1.219)	.029	4.712	.558 (.376)	.107
Travelling Allowance	i) Central Govt.	1930.00	28.411*** (1.865)	.931	8.017	.362*** (107)	.380
	ii) Public Undertaking	22889.88	9.196 (9.951)	-.015	8.714	.238 (.117)	.237
Office Expenditure	i) Central Govt.	5325.17	4.442*** (.142)	.983	7.964	.223*** (.078)	.287
	ii) Public Undertaking	21055.46	2.936 (2.533)	.028	7.242	.389*** (.105)	.463
Office Rent	i) Central Govt.	9309.25	34.892*** (2.738)	.905	9.149	.058 (.067)	-.067
	ii) Public Undertaking	27274.41	2.431 (14.735)	-.107	9.793	.088 (.059)	.108
Other Expenditure	i) Central Govt.	9062.91	1.514*** (.044)	.986	9.020	.092 (.042)	.182
	ii) Public Undertaking	18273.55	1.020*** (.129)	.859	9.031	.153*** (.032)	.865

Note: *** denotes significance at 1 percent level of probability.
Figures within parentheses indicate standard errors.

capita office-expenditure has also increased the per capita total expenditure by Rs.444 as the elasticity coefficient of per capita salary > 1. The per capita travelling allowance and office rent could have multiplied the per capita total expenditure by more than 28 times, had its coefficient of elasticity been not so low.

In public undertakings, only the per capita other expenditure is significant and fully dependent on per capita total expenditure, but it has not increased the per capita total expenditure proportionately. However, for an increase of Rs.100 in the per capita other expenditure, the per capita total expenditure also increases by Rs.102 only.

Gurgaon

The per capita analysis of Gurgaon has not been encouraging because of insignificant results. But, the per capita office expenditure in central government has been observed to be dependent to the extent of 79 percent (Table - 7.13). an increase of Rs.100 in per capita office expenditure, will increase the per capita total expenditure by Rs.130. Similarly, the per capita salary in public undertakings has also been found to be dependent on the total expenditure ($\bar{R}^2$ = 81 percent). For an increase of Rs.100 in the per capita salary, the per capita total expenditure rises by Rs.105 only. The high coefficient of elasticity of 84 percent, measures the strength of per capita salary proportionately in increasing the per capita total expenditure. Surely, this is the characteristic of salary, which is the direct cost to the government, and the right of employee whose salary can not remain undisbursed as has been observed elsewhere too.

TABLE - 7.13

REGRESSION COEFFICIENT OF PER CAPITA TOTAL EXPENDITURE ON PER CAPITA TOTAL COST IN GURGAON AS OF 1980-81

Cost	Sector	LINEAR Intercept	LINEAR Coefficient of Regression	LINEAR $\bar{R}^2$	COBB-DOUGLAS Constant	COBB-DOUGLAS Elasticity	COBB-DOUGLAS $\bar{R}^2$
Salary	i) Central Govt.	2705.07	1.156	.076	3.131	.687	-.120
			(1.035)			(.695)	
	ii) Public Undertaking	2894.10	1.056***	.808	1.742	.842**	.911
			(.191)			(.099)	
Travelling Allowance	i) Central Govt.	8816.74	7.459	-.470	7.712	.308	-.351
			(37.198)			(.292)	
	ii) Public Undertaking	10964.80	20.633	.304	9.268	.083	.079
			(10.249)			(.065)	
Office Expenditure	i) Central Govt.	6462.59	1.300***	.788	8.669	.073	.128
			(.273)			(.092)	
	ii) Public Undertaking	14877.18	1.095	-.033	9.820	-032	-.104
			(1.241)			(.055)	
Office Rent	i) Central Govt.	9638.61	.138	-.499	9.009	.025	-.165
			(8.326)			(.122)	
	ii) Public Undertaking	15655.75	1.214	-.139	9.946	-.052	-.087
			(3.220)			(.079)	
Other Expenditure	i) Central Govt.	9638.60	.036	-.049	9.009	.021	-.165
			(2.192)			(.102)	
	ii) Public Undertaking	15741.37	1.515	-.050	9.533	.038	-.069
			(1.316)			(.051)	

Note: *** denotes significance at 1 percent level of probability.
Figures within parentheses indicate standard errors.

Unit Cost of Creating a Job

The cost of a particular job created either by the central government establishments or by the public undertakings during the reference period 1980-81 is being given in the Table - 7.14 for each town/city of the study area.

Direct Cost

Direct cost defined in terms of salary, given under Column-2 of the table, states that cost of additional salary owing to the creation of a new job in central government establishments is the highest in Delhi Rs.16,800 followed by Ghaziabad-Rs.10,800, Gurgaon-Rs.10,700, and Faridabad-complex - Rs. 10,500. But, in the case of public undertaking both Ghaziabad and Faridabad complex equally rank on top giving per unit additional direct cost (salary) of Rs.26,300 only, while public undertakings located elsewhere in Delhi and Gurgaon do not observe any such increase in the salary cost, and in fact, the increase in per capita salary is nearly equal to the additional salary in central government establishments at their respective places. An estimate of the additional unit cost in the central government establishments in each town/city reveals that the per unit cost of additional salary is more than the per capita salary cost at the existing level of 1980-81 (Table - 7.9). This is the result of creating proportionately more jobs for the employees in group-A and group-B than the existing ratio, who share a greater proportion of salary, and relatively less number of jobs created in group-D than this existing one, who get approximately only 10 percent of the total salary. This is true in the case of public undertakings also. The exception is Gurgaon, where the additional cost of creating a job is Rs.12,100, an amount less than the per capita

TABLE - 7.14

UNIT COST OF CREATING A JOB IN CENTRAL GOVERNMENT AND ALLIED PUBLIC UNDERTAKINGS AS OF 1980-81

(Rupees)

Sector and Town	Direct Cost	Indirect Cost			Total				
	Salary + Allowances	Establishment Cost	Cost of Services Excluding Housing	Cost of Services Including Housing	Indirect Cost Excluding Housing (3+4)	Indirect Cost Including Housing (3+5)	Total Cost of salary & Establishment (2+3)	Total Unit Cost Excluding Housing (2+6)	Total Unit Cost Including Housing (2+7)
1	2	3	4	5	6	7	8	9	10
I. Central Govt.									
Delhi	16800	5950	2980	61330	8930	67280	22750	25730	84080
Ghaziabad	10800	10500	1590	59940	12090	70440	21300	22890	81240
Faridabad-Ballabhgarh	10500	4800	1285	59635	6085	64435	15300	16585	74935
Gurgaon	11700	1785	990	59340	2775	61125	13485	14475	72825
II. Public Undertakings									
Delhi	17900	20650	2980	71480	23630	92130	38550	41530	110030
Ghaziabad	26300	45000	1590	66250	46590	111250	71300	72890	137550
Faridabad-Ballabhgarh	26300	30380	1285	63715	31665	94095	56680	57965	120395
Gurgaon	12100	1900	990	63420	2890	65320	14000	14990	77420

salary of Rs.15,000. The per unit cost of additional salary, approxmiately Rs.10,000 which is more than the existing per capita salary in Ghaziabad and Faridabad-complex also suggests that greater attention has been paid to create more jobs in the officers cadre in Group 'A' and less in Group 'D' (peons and messengers). This has been particularly observed in banking and insurance services, where more extension of services is being provided by appointing more field officers following the expansion policy of these undertakings. In Delhi also, where the per unit additional salary is more, Rs.17,900, than the existing per capita level of Rs.11,460 (but not to the extent of Ghaziabad and Faridabad-complex), such trends have been noticed.

The per unit additional salary of new job created (Table - 7.14) is an aggregate amount of the four different groups of employment (A,B,C and D). Thus, the per unit salary of creating a job is the combined - effect of numer of jobs created in various groups. The per unit additional salary in each group of employment in both the sectors is based on their share in the total salary, which has been estimated for each town/city and given in the Table - 7.15.

The Table - 7.15 indicates that the per unit salary of creating a job in group-A in the central government establishments is the highest in Delhi Rs.31,684 per annum or (Rs.2,640 per month) but in Ghaziabad, it is Rs.20,380 (Rs.1,700 per month) and in Faridabad-complex, it is Rs.16,880 (Rs.1,400 per month). In public undertakings, the additional salary of creating a new job in group-A is the highest in Faridabad-complex Rs.42,068, followed by Ghaziabad Rs.33,573, Delhi Rs.33,052 and Gurgaon Rs.17,532, in group-B, the additional salary of creating a job in central government establishments is to the order of Rs.20,632 in

Delhi, Rs. 19,263 in Gurgaon, Rs. 13,156 in Faridabad complex and Rs.13,012 in Ghaziabad. While, in public undertakings, the additional salary of creating a job in group-A in Faridabad complex is Rs.37,568, Ghaziabad Rs.30,219 Delhi Rs.20,808 and Gurgaon Rs.18,448.

TABLE - 7.15

DISTRIBUTION OF THE UNIT COST OF SALARY BY EMPLOYMENT GROUP AS OF 1980-81

Employees Group	Sector	Per Unit Additional Salary (Rs.)			
		Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon
A	i) Central Government	31684	20388	16880	-
	ii) Public Undertaking	33052	33573	42068	17532
B	i) Cental Government	20632	13012	13156	19263
	ii) Public Undertaking	20808	30219	37568	18448
C	i) Cental Government	6880	5420	7103	11585
	ii) Public Undertaking	11176	15108	16452	7808
D	i) Central Government	6204	4380	4864	4252
	ii) Public Undertaking	6564	-	9112	4612

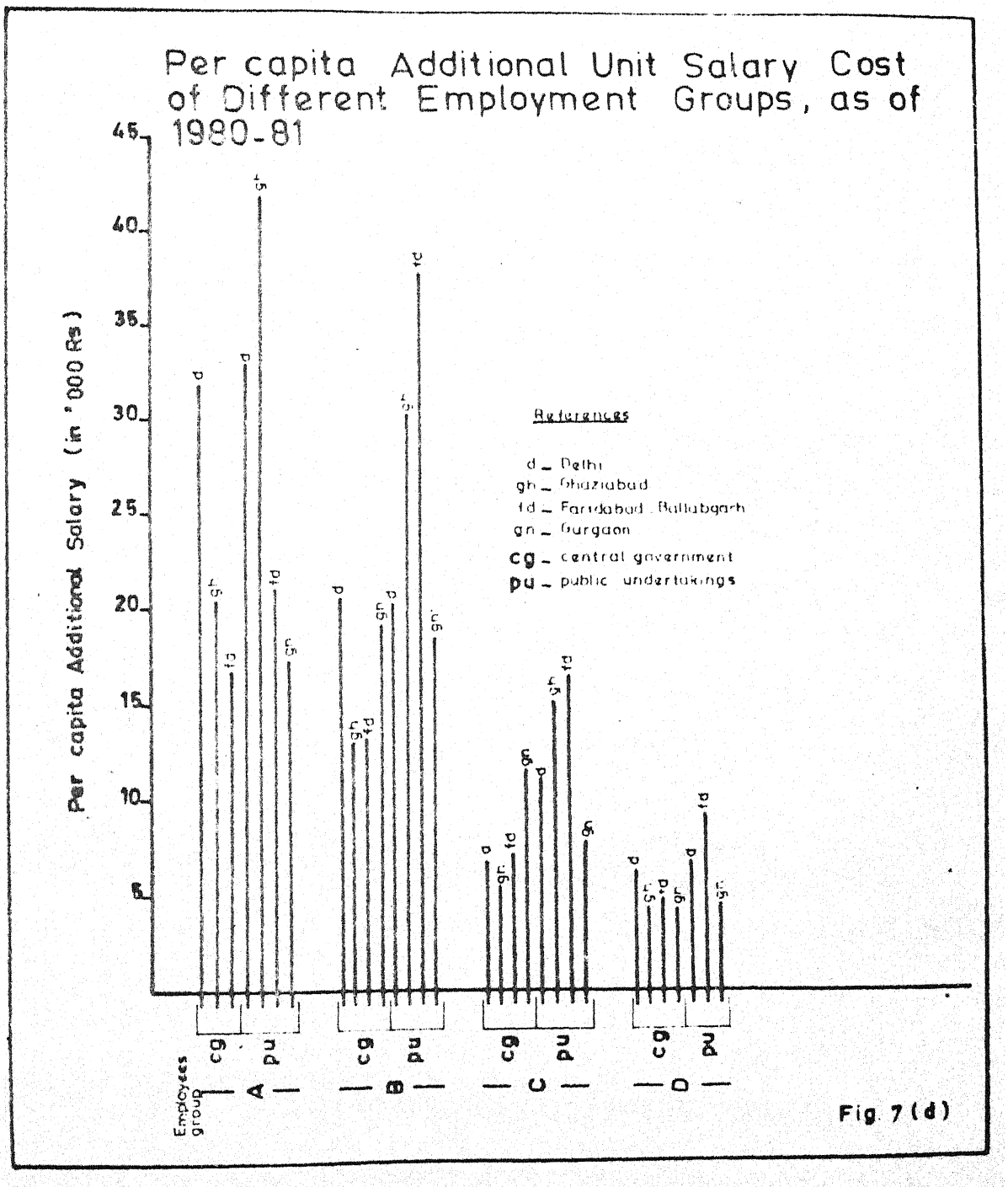
The per capita salary of creating a job in group-C in central government establishments is more in Gurgaon Rs.11,585, while in other three places, it is too less i.e. Rs.7,103 in Faridabad - Complex, Rs.6,800 in Delhi and Rs.5,420 in Ghaziabad. The high per unit cost of

additional salary in Gurgaon is because the maximum proportion of jobs have been created in group-C and there by have a greater share in the salary. It again indicates the greater expansion policy of undertakings at Ghaziabad and Faridabad-complex too, where the per capita additional salary of creating a job in group 'C' is the maximum - Rs.15,108 and Rs.16,452, respectively, while in Delhi, it is 11,176 and in Gurgaon Rs.7,808 only.

The per capita salary of creating a job for group-D employees in central government ranges between Rs.4,000 in Gurgaon and Ghaziabad to Rs.6000 in Delhi, while in public undertakings it shows more variation in their additional salary cost in all the four places viz. Rs.4,612 in Gurgaon Rs.6,564 in Delhi and Rs.9,112 in Faridabad - Complex. A graphic representation of the groupwise per capita additional salary is being given in figure 7 (d).

Indirect Cost

Establishment cost: The establisment cost of an additional employee in the central government is the maximum in Ghaziabad Rs.10,500 followed by Rs.5,950 in Delhi, Rs.4,800 in Faridabad-complex and Rs.1,785 only in Gurgaon. The per capita establishment cost in Ghaziabad is much higher because of fast growing Advanced Level Telecommunication Training Centre which still has a more scope for job creation. The per capita establishment cost in other central government establishments is relatively too low i.e. Rs.2,600 only. But, because of the ALTTC, the per capita establishment cost will go on mounting and this pattern is likely to continue. In Delhi also, per capita additional establishment


Per capita Additional Unit Salary Cost of Different Employment Groups, as of 1980-81
Per capita Additional Salary (in '000 Rs)
45
40
35
30
25
20
15
10
5
References
d – Delhi
gh – Ghaziabad
fd – Faridabad Ballabgarh
gn – Gurgaon
cg – central government
pu – public undertakings
Employees group
A
B
C
D
cg
pu
Fig. 7 (d)

cost is more than the existing level. But, in Faridabad complex, it is less by Rs.2,000 and in Gurgaon by Rs.1,500.

In the public undertakings also, the per unit establishment cost of Rs.45,000 is higher than the existing level of Rs.12,000. It is because of a very high expenditure by the Bank of India, which has located its two branches and its regional headquarter besides State Bank of India and Andhra Bank. The three banks alone increased the establishment cost by Rs. 9 lakhs and together they have added an employment of 9 units only. This has been the reason for such a high per capita establishment cost in public undertakings in Ghaziabad.

Increasing investment in public undertakings in Faridabad-complex, like Ghaziabad has raised the per capita establishment cost to Rs.30,380 as against the existing level of Rs.12,580. But it is not so in Delhi, where the additional cost of salary is Rs.20,650 as compared to Rs.16,390 at the existing level of 1980-81. In Gurgaon, this is Rs.1,900 below the existing per capita establishment cost of Rs.3,180 suggesting that the pace of expansion in public undertakings has been very slow, and in some, there has been even retardation.

Cost of Services[3]

The per capita/unit cost of providing services is the highest in Delhi followed by Ghaziabad, Faridabad-complex and Gurgaon. Housing is the costliest item in the provision of services facilities and more or less, it has the same per unit cost in all the four towns. It is

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3. Directorate of Estate Office, Government of India, Ministry of Works and Housing.

mainly because of equal cost incurred on construction and material. But in the houses built by the Delhi Development Authority, Ghaziabad Development Authority, and Haryana Urban Development Authority, the per unit cost in Delhi has been more, Rs.68,500, by a margin of Rs.4,000 only than the second highest cost at Ghaziabad, Rs.64,660, and in Faridabad-complex and Gurgaon it is the same Rs.62,430 probably because of the same authority - HUDA being responsible for the development and construction of houses.

The per capita/unit cost of providing services in Delhi, Ghaziabad, Faridabad complex and Gurgaon is given in the Table - 7.16. The Table reveals that the per capita cost of services, excluding housing is the lowest in Gurgaon (Rs.990) and highest in Delhi (Rs.30,009) followed by Ghaziabad Rs.1,590 and Faridabad-complex Rs.1,285. With the exception of transport services at the local level in Ghaziabad and Gurgaon and community services in Ghaziabad, parameters of estimating the cost of services show greater variation and significant results.

The per capita cost of providing electricity connection at the household level is five times more in Delhi i.e. Rs.560 than in the other three towns. The cost of primary and secondary education has also been the highest in Delhi Rs.400 and Rs.490, respctively. While the per student cost of secondary education in Ghaziabad is Rs.327, very close to Delhi, the primary education cost is one-fourth only. The cost of education in the two towns of Haryana is the cheapest i.e. Rs.69 for primary education and Rs.175 for secondary education.

TABLE - 7.16

PER CAPITA/UNIT COST OF SERVICES AS OF 1980-81

(in Rupees)

Sl. No.	Parameters	Delhi	Ghaziabad	Faridabad-Ballabhgarh	Gurgaon
1.	Water Supply	212	140	227	230
	a) Sewerage	240	415	144	145
	b) Drainage	196	305	95	95
2.	Electricity/Power				
	a) Private Connection	560	125	105	106
	b) Street Lighting	10	8	11	4
3.	Roads	229	120	124	124
4.	Housing				
	a) Govt. Estate Office	58350	58350	58350	58350
	b) Development Authorities DDA, GDA and HUDA.	68500	64660	62430	62430
5.	Transport	265	-	246	-
6.	Health	77	25	22	22
7.	a) Primary Education	400	107	69	69
	b) Secondary Education	490	327	175	175
8.	Recreational Facilities				
	a) Parks & Playgrounds	261	10	25	5
	b) Library/Reading Room	N.A.	3	5	4
	c) Communnity Centre	N.A.	-	32	7
9.	Others (Milk/Book/Busstand/ Police Post etc.)	40	5	5	4
TOTAL:	i) Unit Cost of Services excluding housing	2980	1590	1285	990
	ii) Including Housing 4 (a)	61330	59940	59635	59340
	iii) Including Housing 4(b)	71480	66250	63715	63420

The per capita cost of providing the facility of parks and play grounds for recreation is very high in Delhi (Rs.262), while in other towns, it does not exceed beyond Rs.25. In fact, in Delhi this facility is available in each block of the government colony and DDA complexes. Further there are visible parks and playgrounds, particularly in New Delhi area and which are maintained by the department of horticulture.

The per passenger cost of transport services, provided by the Delhi Transport Corporation is Rs.265, while it is Rs.246 in Faridabad complex. Local transportation is not provided by the transport department of Uttar Pradesh in Ghaziabad and Gurgaon in Haryana.

The lowest per capita cost of water supply is Rs.140 in Ghaziabad, while it is Rs.230 in Gurgaon, Rs.227 in Faridabad complex and 212 in Delhi. The cost of sewerage and drainage is highst in Ghaziabad being Rs.415 and Rs.305 respectively. The per capita sewerage cost has been Rs.240 in Delhi and Rs.145 in Faridabad complex and Gurgaon, and the drainage costs, Rs.196 in Delhi and Rs.95 in other two towns of Faridabad complex and Gurgaon.

The per capita cost of laying down roads is Rs.229 and also the highest in Delhi, while in other towns, it does not exceed Rs.125. The higher cost of laying down roads is easily understood as roads in Delhi are more wider and maintained better than other places.

The per capita cost of health services is Rs.77 in Delhi because CGHS facility has been extended and provided, at least, in each government colony. It is highest because, the service is highly subsidised. In other towns health services do not cost more than Rs.25 per person, it may be due to lack of CGHS facility which has its huge establishment cost in Delhi.

Other services, like milk booths and bus stand, are available mostly in Delhi and their per capita cost has been Rs.40, while in other towns, it is almost negligible ranging between Rs.4-5.

The total per capita/unit cost of providing housing to the central government employee, taking the housing norm of the Directorate of Estates, Government of India, Ministry of Works & Housing is Rs.61,330 in Delhi, Rs.59,940 in Ghaziabad, Rs.59,635 in Faridabad-complex and Rs.59,340 in Gurgaon. But, for an employee of public undertakings, where the housing norms have been taken from Development Authorities, the per unit cost of housing is more than the central government because of more uneconomic cost in the former. And the variation in per unit housing cost is also more visible in four towns which is Rs.71,480 in Delhi, Rs.66,250 in Ghaziabad, Rs.63,715 in Faridabad-complex and Rs.63,420 in Gurgaon than the variation in central government.

Total Indirect Cost

The total indirect cost of creating a job excluding housing is given in column (6) and including housing in column(7) of the Table - 7.14. In central government establishments, the total indirect cost of creating a job is the highest at Rs.70,440 in Ghaziabad, followed by Rs.67,280 in Delhi, Rs.64,435 in Faridabad complex and Rs.61,125 in Gurgaon. This phenomenon is also observed in public undertakings of Ghaziabad which has the highest total indirect cost of Rs.1,11,250 in creating a job followed by Faridabad complex Rs.94,095, Delhi Rs.92,130 and Gurgaon Rs.65,320. The higher indirect cost in central government and public undertakings in Ghaziabad and of Faridabad complex is relatively more because of more establishment cost involved in creating a job.

Total cost of creating a Job

The total cost of creating a job as given in columns (9) and (10) of the Table - 7.14 is the sum of direct and indirect cost excluding and including the cost of housing both for central government establishments and public undertakings as well. The total cost for each sector and each town has also been presented in the Figure 7(e).

In the central government establishments, Delhi incurs the highest cost of Rs.84,080 in creating a job which is higher than Rs.81,240 in Ghaziabad (by a margin of Rs.3,000) Rs.74,935 in Faridabad complex (by a margin of Rs.9,155) and Rs.72,825 in Gurgaon (by a margin of Rs.11,000). Thus, Gurgaon is the cheapest possible place found among the locations of central government establishments.

In public undertakings, the total cost of creating a unit job is Rs.1,37,550 in Ghaziabad followed by Rs.1,20,395, in Faridabad-complex, Rs.1,10,030 in Delhi and Rs.77,420, the least in Gurgaon. Thus Gurgaon becomes the only place which incurs the minimum expenditure in job creation at the existing level of services during 1980-81.

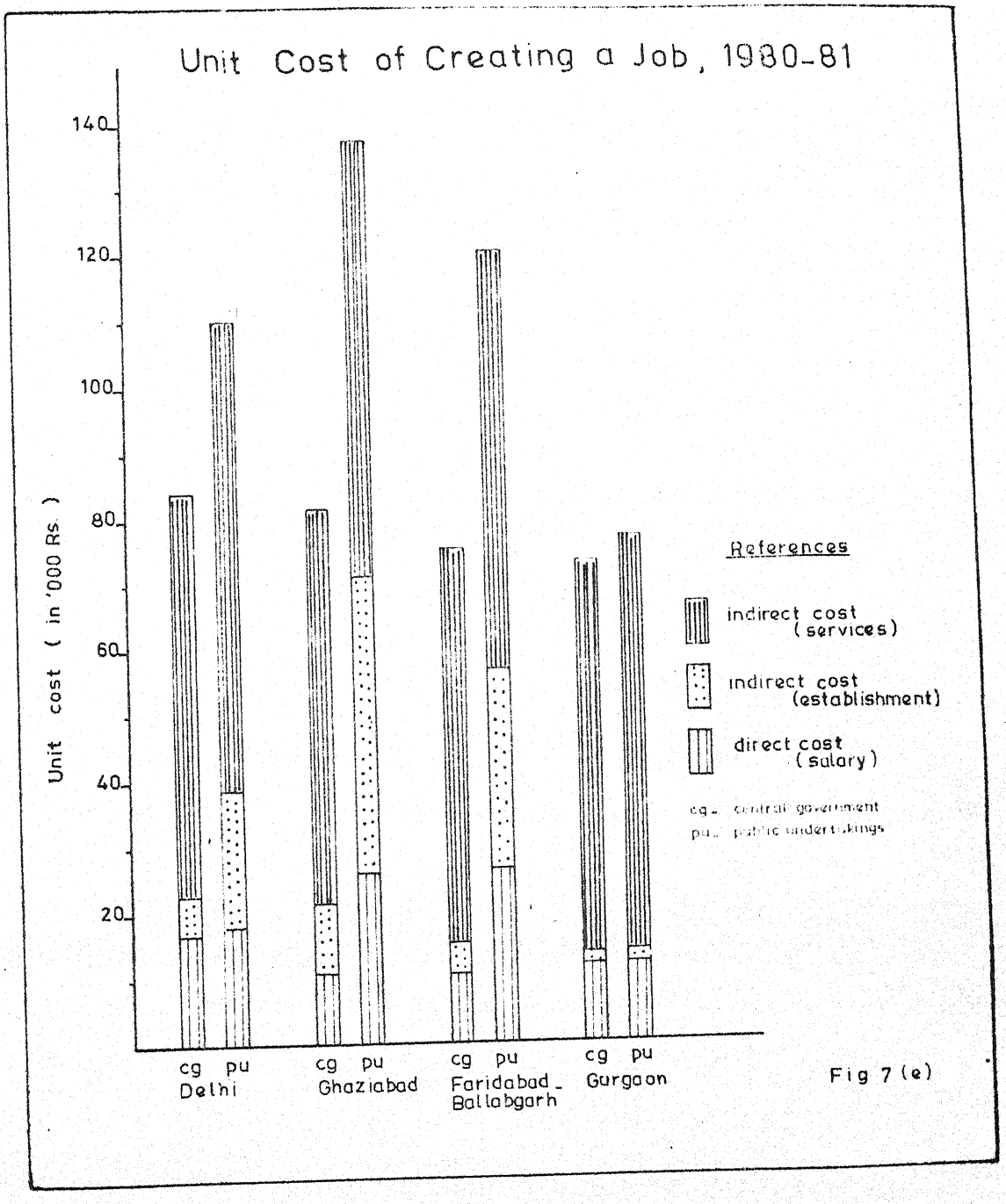
Unit Cost of Creating a Job, 1980-81
Unit cost (in '000 Rs.)
140
120
100
80
60
40
20
References
indirect cost (services)
indirect cost (establishment)
direct cost (salary)
cg - central government
pu - public undertakings
cg pu
Delhi
cg pu
Ghaziabad
cg pu
Faridabad - Ballabgarh
cg pu
Gurgaon

Fig 7 (e)

CHAPTER - 8

CONCLUSIONS AND POLICY IMPLICATIONS

The unit cost of public employment may be expected to vary with the increasing cost of establishment including salary and the cost of city infrastructure and services. But in estimating the unit cost of creating a job, the meaningful question is, therefore, related to (i) the basic factors responsible for the cost variation and (ii) how this variation is useful for resource allocation and its mobility over the space. While the factors responsible for the cost variation provide the analytical framework and the positive basis for policy options, the mobility of labour (and capital) determines the relation of price (wages) to economic efficiency.

The estimates of unit cost of creating a job are based on (i) direct cost (salary and allowances) and (ii) indirect cost i.e. (a) the cost of establishment and (b) the cost of services at the household/ neighbourhood level. The implications of job creation are analysed in terms of employment multiplier estimated on the basis of (i) linear and (ii) non-linear regression models and its impact on economic base of the towns and cities.

Phenomenon of Rising Cost

The job opportunities once created in the public sector go on multiplying with the growth of demand for public goods. And the actual output of public goods should grow at the rate of poulation growth maintaining equilibrium growth path and consuming a constant share of gross national product. But it never happens, and evidently, it raises

the total cost of public sector over time whether employment remains stationary or shows an increasing trend. The study substantiates these theoretical premises when it indicates that in the office establishments of both central government and public undertakings in Delhi, where there has been no increase in employment during the period 1979-80 and 1980-81, the gross increase in the total expenditure has been of the order of 9.84 percent in central government and 23.88 percent in public sector undertakings. Discounting these growth rates for the rate of inflation (@ 17 percent) during the corresponding period, the net increase in the total expenditure was 8.16 percent in central government and 19.82 percent in public undertakings.

In the office establishments which have recorded an increase in employment, the gross increase in total expenditure has been 13.10 percent in central government and 20.86 percent in public undertakings during 1979-80 and 1980-81. Discounting for the rate of inflation again for the corresponding period, the net-expenditure has increased by 10.87 percent in the central government and 17.32 percent in public undertakings.

A relatively high expenditure in allied public undertakings is due to more liberal and conspicuous norms of pay scales, allowances, perks, bonus and establishment cost etc. irrespective of their productivity. This is one of the reasons for a lower mobility rate in public undertakings as compared to central government establishments (Chapter5, Table - 5.8).

Total Employment and Public Employment

The share of public sector employment with respect to 'other services' which includes community and personal services is about 75

percent (but with respect to total work force, it is 28.76 percent), while in the private sector, it is only 26 percent. The corresponding employment opportunities in the former increased by 30.23 percent, while in the latter by 16.44 percent during 1971-81. In a pack of 100 employees of public sector in Delhi, the share of central government is 51, of public undertakings 18, of state administration 12, and of local bodies 19. The general equation of the total employment in the five sectors could be given as 1000 Et = 373 Ec + 129 Eu + 91 Es + 144 El + 23 E'p.

Employment Multiplier

One of the objectives of the study has been to find out the relationship between total employment and the employment in central government and its allied undertakings. This amounts to saying that for any increase in employment in both or any of the sectors, the total employment will increase by a multiplied amount, and this could be called as employment multiplier. Today, public sector in Delhi employs three-fourth of the total employment of which central government and public undertakings share 37 and 13 percent, respectively. As among different sectors, the employment multiplier has been the highest for local bodies (4.4), followed by private sector (3.8), central government (3.6), state administration (2.7), public undertakings (2.5).

The findings thus reveal that for each pack of 10 jobs created in central government, the total employment multiplies by 36 units, while in public undertakings by 25 units either due to growth in production - oriented tertiary sector or consumer-oriented tertiary sector or both (Chapter - 3, Table - 3.5). If the objective is more employment generation, the choice between the central government and public

undertakings goes in favour of the former since the scope of generating employment through central government establishments seems to be more due to its high value of employment multiplier. This is an obvious policy implication.

Employment Stability

Employment over a period of time has both trend and pattern, besides fluctuations in employment. The employment fluctuations both in central government as well as in Delhi state administration has been procyclical i.e. the employment fluctuation in these sectors has been more than the fluctuation in the total employment (coefficient of elasticity being greater than unity (Chapter 3, Table - 3.6), while in others (excepting public undertakings), the employment fluctuations have been counter-cyclical. The employment in public undertakings has shown the least fluctuations and has followed a linear trend. It implies lack of perspective in government's employment policy for a more stable growth of employment, income and the economy. Creating jobs following the egalitarian philosophy of economic democracy and then stopping all of a sudden in the name of economy, has been subjected to, too much ad-hocism in decision making in the central government sector.

Marginal Employment

A slight deviation from the average increase, the marginal increase in employment has been the highest for urban local bodies (4.410 units) followed by central government (3.113), and public undertakings (2.520).

Economic Base Multiplier

The economic base of public sector in Delhi is so strong that a unit increase in the basic sector employment increases the total

employment by 7 units, while in the private sector, it is insignificant (.7373). Since public employment is also strongly related to the total employment with its coefficient of determination (R^2) of 86.54 percent it implies a widening gap between public and private sector. The former has been increasing more than the latter which indicates that even the basic activity has become an important field of employment for the public sector. This has a bearing on the unplanned consequenes of the economic base of the town or city. The private sector has to be assigned its due share and the non-basic sector should grow in accordance with the demands of the basic sector.

The share of workers in basic activity is 62 percent in Faridabad-complex followed by 48 percent in Ghaziabad, 30 percent in Delhi and 26 percent in Gurgaon. For a unit increase in basic employment, the total employment will increase by 2.5 units in Delhi, Gurgaon, 1.6 units in Faridabad complex and 1 unit in Ghaziabad.

The manufacturing activity in the economic base of a town is most important component. It is 55 percent, the highest in Faridabad-complex followed by 36.4 percent in Ghaziabad, 23 percent in Delhi and 18.4 percent in Gurgaon. But the employment potential of the manufacturing activity in terms of employment multiplier is 4.7 units (the highest) in Gurgaon, 2.84 units in Delhi, 2.14 units in Ghaziabad and 1.56 units in Faridabad-complex.

The share of employment in trade and commerce activity has declined since 1971, and presently it has its share of 22 percent in Delhi, 19.3 percent in Gurgaon, 18 percent in Ghaziabad and 12.6 percent in Faridabad-complex. But the value of employment multiplier of trade and commerce activity is around 3.5 units in Delhi, Gurgaon and Faridabad-complex. The decline of trade and commerce activity in Delhi, inspite

of more expansion of trade in private has been possible due to proliferation of clandestine business activity and more shifting of jobs to the informal sector. This demands adequate measures to protect and revitalise the informal sector which is the hope of and also holds the migrant labour in the urban economy.

The employment in construction activity has been more in Delhi (5.8 percent) and Ghaziabad (4.2 percent) as compared to Gurgaon (3.4 percent) and Faridabad (2.6 percent). But the value of multiplier was more in Ghaziabad (13 units) than 12 in Faridabad-complex and 7 in Delhi, which implies that by employing 10 persons in the construction activity, additional employment for 130, 120 and 70 persons could be created in different sectors of the urban economy respetively in Ghaziabad, Faridabad-complex and Delhi (Tables 6.3, 6.5 and 6.7)

The transport, storage and communication activity is equally shared by Delhi, Ghaziabad and Gurgaon (10 percent each) but the value of its multiplier varies from 6 units in Delhi and Ghaziabad to 4.3 units in Gurgaon. In Faridabad-complex, although this activity constitutes merely 3.8 percent its value of employment multiplier is 4.6 units.

The service sector is most important sector in the total employment. Its share of employment in the total pool is 45 percent in Gurgaon, 38 percent in Delhi and about 22 percent in Ghaziabad and Faridabad complex. But its value of employment multiplier is almost 2 units in each of the towns/cities.

Urban Space Requirements

The way different economic activities go on multiplying the economic base of each town/city also accentuate the growth of population as well as the physical growth of the town and city, particularly,

areal. For a unit increase in population, the space needed to accommodate one additional person at the existing level of services and infrastructure is estimated at 22.55 sq. metres in Delhi, 331 sq. metres in Ghaziabad, 62 sq. metres in Faridabad-complex and 301 sq. metres in Gurgaon. The more space standards in Ghaziabad and Gurgaon are due to high land-man ratio in these towns but it is not so in Delhi. It indicates not only the scarcity of land in Delhi and abundance of land in Ghaziabad and Gurgaon but also the lack of proper norms and planning standards including land-use control measures in the latter case. The useful estimates of urban space requirement provide the positive basis for the perspective planning keeping in view the population growth and the urban land requirements for the healthy growth of the town/city with a quality of life.

Economic and Environmental Structure of Households

Income and Family Size

The average family size of a sample household is 4.2 in Delhi, 4.3 in Ghaziabad, 3.8 in Faridabad complex and 3.7 in Gurgaon. The relation between family size and income of the household is well established. The study reveals that the family size increases with the increase in income. Thus it is the income which determines the family affordability rate but the increase in family may occur due to joining of some more family members with the single household employees (Chapter-5, Table - 5.15).

Housing Tenureship

The government has provided housing accommodation to 17.76 percent employees in Delhi, 60.82 percent in Ghaziabad and 15.15 percent in Faridabad complex (Chapter - 5). The housing tenureship status of

employees indicates the inadequacy of government accommodation as 19.18 percent employees are sharing accommodation in Delhi, 8.70 percent in Ghaziabad and 12.12 percent in Faridabad-complex. The current situation of inadequacy of accommodation has bearing on more demand for government housing which did not receive an adequate attention for a comprehensive coverage.

Living Space

Living space is too inadequate for the majority of employees. About 47 percent employees with their family income of Rs. 500 and below are living in one-room tenements, simply because they cannot afford more space. Only 3 percent employees in this income-range are having two-roomed accommodation. The demand for more living space also increases with the increase in income size (Chapter - 5, Table - 5.19). The government should therefore provide more rental housing at the subsidised market rate.

Quality of Life

The quality of living enviroment measured in terms of the availability of separate kitchen, tap water, electricity, w.c. bath, sewerage etc. at the household level indicates that all these facilities are available to group A and B employees only both in Faridabad complex and Gurgaon and partly in Delhi and Ghaziabad. While about 40-47 percent of group 'D' employees have access to these facilities at the household level both in Delhi and Ghaziabad (Chapter - 5, Table - 5.20). This reflects on the environmental policy and the quality of life of its resident population. The growth of the city is not so much important as the quality of life of its people. Adequate measures, therefore, should

be taken to provide these basic-services to the employees of the organised government sector for a wholesome cultured life.

Transport

The mode of conveyance used for going to office varies from place to place. In Delhi about 70 percent employees use public transport (DTC Buses) and only 8.20 percent use privately owned chartered buses, while 8.20 percent commute on foot. About 2.19 percent use taxies/scooters, 3.83 percent use their own cars/scooters/motorcycles and 3.46 percent use bicycles and an equal number commute by trains. Less than 1 percent use cycle rickshaw. In Ghaziabad majority of employees commute on foot followed by Faridabad-complex, where the maximum number of employees use bicycles also. Public buses and bicycles are the predominant modes of transport in Gurgaon (Chapter - 5, Table - 5.25). More plying of chartered buses in Delhi is because the DTC is not in a position to manage traffic load during peak hours. It may be due to lack of discipline or mismanagement of the DTC affairs. Looking at the problems of Delhi transport, the DTC needs an adequate management at all levels which is lacking presently. And the traditional modes of transport like bicycles should not be discouraged but properly infused in the urban transport network with adequate provisions of cycle tracks and pedestrian paths.

Expenditure Pattern

The household expenditure on services is being incurred, nearly in the same proportion in each town ranging from 24.5 percent to 27.4 percent of the income. In Delhi, and Ghaziabad, the expenditure on services is uniform and declines with an increase in the size of income,

while in Faridabad complex and Gurgaon, there are variations and no definite trend follows (Chapter -5, Table - 5.27).

In so far as the household expenditure is concerned, it varies significantly in each town and declines with an increase in the size of income. About 58 percent of the household income in Delhi is being spent on kitchen items including clothings etc. The proportion of household expenditure is more in the lower income group (77 percent) which declines after an increase in the household income (47 percent). In Ghaziabad, the households earning below Rs.500 are living hand to mouth and feeding themselves and their family any how, are spending more than their earnings (i.e. 115 percent) either by borrowing money or purchasing ration on credits. Since the pattern of total expenditure is dominated by the expenditure at the household level, it shows a declining trend upto a certain level beyond which it never goes down. It substantiates Friedman's permanent consumption hypothesis. Considering the level of household expenditure, there is a dire necessity of revising the pay structure for providing a certain minima to the government employees to meet the household expenditure.

Saving Pattern

The compulsory savings in the form of contribution towards general or contributory provident fund, compulsory deposit scheme or additional dearness allowance, house rent allowance, etc. are made at the source of income. Such savings upto Rs.100 have been observed to be common in all income-groups. The proportion of savers in different income-ranges goes on declining with a rise in savings-range and this is a very interesting phenomenon to observe. About 45 percent households have saved upto

Rs.100, 18 percent between Rs.101-200, 20 perent between Rs.201-400 and 15 percent Rs.500 and above (Chapter - 5, Appendices 5(5) to 5(8).

The domestic savings range in Ghaziabad has been very poor as the savings potential of 74 percent of household is zero and in fact, negative and the remaining 26 percent families do not save beyond Rs. 200. In Delhi 23 percent save upto Rs.100, 11 percent between Rs.101-200, 7 percent between Rs.201-300, 5 percent between Rs.301-500 and 9 percent families save Rs.500 or more. While in Gurgaon, 20 percent families save between Rs.101-200 and the rest between Rs.400 or more. The savings potential of families living in Faridabad-complex is the highest, where 91 percent are having domestic savings. Of this, 33 percent households save upto Rs.100 and 30 percent households save more than Rs.400.

Rate of Job Creation

The rate of job creation in public undertakings has been more than the central government establishments in all the towns excepting Ghaziabad, as of 1980-81. Among the central government establishments, the rate of job creation has been 3.6 percent in Delhi, 16.5 percent in Ghaziabad, 4.4 percent in Faridabad complex and 5.4 percent in Gurgaon. While in public undertakings the rate of job creation has been 5.9 percent in Delhi, 6.3 percent in Ghaziabad, 5.2 percent in Faridabad-complex and 10.3 percent in Gurgaon (Chapter - 7, Table - 7.3).

Per Capita Establishment Cost

It has been established that the central government establishments show a pattern of diminishing cost with increasing size of employment beyond 300. The norms of office expenditure of central government establishments being the same for all the four towns and cities, the per

unit (per establishment) office expenditure is more in other towns as compared to Delhi because the size of employment in other towns is relatively low. This shows that the economies of scale operate in Delhi due to large scale operation minimising the establishment expenditure per unit.

It has been observed that the public undertakings have been spending money on office expansion irrespective of their size of employment which varies from establishment to establishment depending upon the nature of establishment itself. The establishments in public undertakings, where the employment has increased, the total expenditure has increased by 17 percent, but in the establishments where the employment remained stationary, even then the total expenditure increased by 24 percent. This substantiates the growth of expenditure in public undertakings irrespective of their size of employment. There seems to be no relation between the growth of expenditure and the size of employment in public undertakings. It may be due to their extravagent expenditure or high perks, etc. This demands parity not only in the office expenditure alone but also in the means of equalising the levels of living based on the canons of 'equal pay for equal work' both in central government and its allied undertakings.

Salary Cost

The salary cost of an additional job creation in central government establishments is Rs.16,800 and in public undertakings, it is Rs.17,900 which is more than the respective per capita salary. But in the central government establishments of other towns, this variation is not so significant. At the existing establishment level, the salary cost of a unit is Rs.8,000, while for creating an additional job, it is Rs.10,000.

But in public undertakings, the existing per unit salary cost is Rs.15,000, while for creating an additional job, it is slightly above Rs.26,300 both in Ghaziabad and Faridabad complex. In Gurgaon although the per capita salary cost is Rs.12,000 and it is lower than the existing per capita salary, the job creation has been the lowest. It means in Gurgaon, there seems to have been no expansion in public undertakings, inspite of its low direct cost. It may be due to lack of infrastructure or the sheer will of the government policy decision in the matters of locating office establishments.

Establishment Cost

The component of direct cost (salary and allowance) in central government establishments has been higher, 75 percent, as compared to 41 percent in public undertakings; whereas the establishment cost in the latter has been on a very higher side at 59 percent as against 25 percent in the former. (Chapter-7, Tables - 7.4 and 7.5). These cost components in public undertakings do not have any relation with the level of employment. The per capita annual establishment cost of creating a job in central government establishments is Rs.2,600 in Ghaziabad. It is lowest as compared to Rs.5,900 in Delhi, Rs.4,800 in Faridabad-complex and Rs.3,180 in Gurgaon. Excluding ALTTC in Ghaziabad, the per capita establishment cost could have been still lower at Rs.1,800 in Ghaziabad. Thus, there is a lot of scope for more job creation and opening of new office establishments in Ghaziabad. The government should, therefore, optimise the benefits of its alternate investment by designing favourable locational policies.

While in public undertakings in Ghaziabad, the per capita establishment cost of an addional job creation is Rs.45,000, it is only

Rs.12,110 at the existing level. But in the case of other towns, this cost varies significantly i.e. Rs.30,380 in Faridabad complex, Rs.20,650 in Delhi and Rs.1,900 only in Gurgaon. Although Gurgaon has the least cost, it has witnessed the lowest pace of development as compared to Ghaziabad. This indicates lack of an effective regional economic policy for a more balanced growth and development of the towns and cities in the national capital region. This needs a bolder and a more comprehensive policy in action.

Office Expenditure

The per capita annual office expenditure in central government is the minimum at Rs.1,670 in Delhi and the maximum at Rs.3,350 in Ghaziabad. Because of ALTTC, the per capita office expenditure in Ghaziabad is highest and excluding ALTTC, it is the lowest i.e. Rs.1,225 only, because of localisation of all government establishments in C.G.O. Complex.

The average per capita office expenditure works out to Rs.3,290 in public undertakings in Delhi, the amount which is more than twice the central government establishments and it varies with the size of employment. But the per capita office expenditure is high only in those establishments, where the per capita expenditure on salary is also high and vice versa. It suggests that in public undertakings, the per capita salary and per capita office expenditures are though directly related, yet, they do not reflect any trend of diminishing cost. If the per capita salary increases by Rs.100 in central government establishments, the per capita total expenditure rises by by Rs.105 only, while in public undertakings by Rs.380. (Chapter - 7, Table - 7.10). Moreover, the per capita salary has shown high fluctuations in public

undertakings, as the elasticity of expenditure is greater than 1, while it is uniform in central government, and the elasticity is less than 1. There seems to be no economy in the expenditure and as a policy measure, the government should adhere to the more rational expenditure.

Likewise, the per capita office expenditure is also independent of the per capita total expenditure, and this is not surprising being minimum in central government. For an increase of Rs.100 in the office expenditure, the per capita total expenditure will rise by Rs.130, but for the component of rent in the office expenditure, the per capita total expenditure will rise by Rs.5 only. This is generally due to the reluctance of government to increase the office rent which remains inelastic.

Cost of Creating an Additional Job

Direct Cost

The direct annual cost (additional salary and allowances) of an additional job in cental government establishments is the highest, Rs.16,800 the highest in Delhi, Rs.10,800 in Ghaziabad, Rs.10,700 in Gurgaon and Rs.10,500 in Faridabad complex. But in the case of public undertakings, it is Rs.26,300 both in Ghaziabad and Faridabad complex, Rs.17,900 in Delhi and Rs.12,100 in Gurgaon (chapter - 7, Table - 7.14).

Indirect Cost

(a) Establishment Cost

The annual establishment cost of an additional job in central government is Rs.10,500 in Ghaziabad, Rs.5,950 in Delhi, Rs.4,800 in Faridabad complex and Rs.1,785 in Gurgaon. The establishment cost in Ghaziabad is highest because of the Advance Level Telecommunication Training Centre. Otherwise, the additional establishment cost for

central government establishment is the least-Rs.2,600 only. In public undertakings also, the per unit establishment cost of an additional job is Rs.45,000, an amount four times higher than the existing level of Rs.12,000. (Table - 7.14).

(b) Cost of Services

The annual indirect cost of providing services and infrastructure at the household neighbourhood level, excluding housing is the highest Rs.2,900 in Delhi and lowest Rs.990 in Gurgaon. Next to Delhi is Rs.1,590 in Ghaziabad and Rs.1,285 in Faridabad-complex (Chapter-7, Table 7.16). A higher indirect cost of providing services in Delhi is due to increasing cost of services. The city has already acquired a certain size of population beyond which the law of increasing cost seems to have started operating.

Total Indirect Cost

The sum total of establishment cost and the cost of services and infrastructure at the household level givesthe indirect total cost. The total indirect cost is (including housing) the real parameter of measuring the indirect component of the unit cost. It is Rs.70,440 in Ghaziabad, Rs.67,280 in Delhi, Rs.64,435 in Faridabad complex and Rs.61,125 in Gurgaon. This pattern is also observed in the public undertakings in Ghaziabad, where the indirect cost is Rs.1,11,250. In Faridabad complex, it is Rs.94,095, Delhi Rs.92,130 and Gurgaon Rs.65,320 (Chapter -7, Table - 7.14).

Total Unit Cost

The sum total of direct and indirect costs gives the total unit cost. The annual total unit cost of creating an additional job in

central government establishments is Rs.84,080 in Delhi, Rs. 81,240 in Ghaziabad, Rs.74,935 in Faridabad and Rs.72,825 in Gurgaon, the least. This includes the cost of housing also. Likewise, in public undertakings, the total unit cost of creating a job is Rs.1,37,550 in Ghaziabad, Rs.1,20,395 in Faridabad-complex, Rs.1,10,030 in Delhi and Rs.77,420 in Gurgaon. The low cost in Gurgaon both in cental government establishments and public undertakings is due to lack of developed infrastructure of services and minimum density of capital. Moreover, the reluctance of public undertakings to have opened new offices or expanded the existing ones is also one of the reasons. In the absence of a very strong economic base, the growth and expansion of the town becomes doubtful. Gurgaon has been predominantly a trade and commerce centre based on local operations to a larger extent. The policy option, therefore, is to divesify the economic base of the town as well. Within the overall framwork of the study, the use of various cost components, determine the cost differentials from one town to another town. But the total unit cost is the lowest in Gurgaon. Considering the availability of land and land-use and density pattern, the favourable choice for the location of establishments would be either in Ghaziabad or in Gurgaon. The study has, therefore, far reaching implications for the planning of National Capital Region, in general and Delhi, in particular in so far as the shifting of office establishments is concerned.

In view of the above, the total cost differentials as among different towns and cities are not so much so due to differential in the various constituting cost compoments but because of other variables that interact with population size in establishing the pattern of relationship between direct and indirect cost and the total unit cost of

creating a job. These gross variables are the levels of income differentials, investments, land area, land-use pattern, norms and standards of various services and facilities and the density of capital per unit of space. These are the new areas which provide the basis for further research and groping over the problem within the given framework.

A N N E X U R E S

ANNEXURES

ANNEXURE - I: ENUMERATION SLIP

INDIAN INSTITUTE OF PUBLIC ADMINISTRATION

(CENTRE FOR URBAN STUDIES)

Study: Unit Cost of Creating a Job in Central Government and its Allied Undertakings : Its Multiplier Effects and Implications.

1. Name of Office/Establishment:

(Ministerial/Attached/Subordinate/Public Sector Undertaking/ Nationalised Bank/Institution).

2. Number of Employees as on 31st March

Group/Category	1980	1981
A/I		
B/II		
C/III		
D/IV		
TOTAL		

3. Total Expenditure

Head	Annual Expenditure in Rupees	
	1979-80	1980-81
1. Salary and allowances		
2. Travelling allowance		
3. Office establishment expenditure		
4. Office rent		
5. Other expenditure		
6. Additional expenditure due to increase of additional employment		
TOTAL		

4. Number of employees added/or left during the reference period i.e. 1st April 1980 to 31st March, 1981.

Group/Category	Number of Employees			
	Added/recruited		retired/left the estt.	
	Regular/Daily wages	Total	Regular/Daily wages	Total
A-I				
B-II				
C-III				
D-IV				
TOTAL				

5. Change in office space requirement due to change in the staff strength (on roll).

6. Name and address of the employees added/recruited in the establishment from 1st April, 1980 to 31st Marh, 1981.

Name of the Employee	Designation	Address

ANNEXURE - II

Confidential

HOUSEHOLD SCHEDULE

INDIAN INSTITUTE OF PUBLIC ADMINISTRATION
(CENTRE FOR URBAN STUDIES)

Project: Unit Cost of Creating a Job in Central Government and Allied Undertakings: Its Employment Multiplier Effects and Implications.

A. OFFICE BASED INFORMATION

1. Name of Employee: ----------

2. Office Address: ----------

3. Nature of Post: 1. Technical 2. Non-technical --------

4. Category of Post: 1. Group A/I, 2. Group B/II
3. Group C/III, 4. Group D/IV. --------

5. (a) How many times did you change your job during the last 10 years
1. Once 2. Twice 3. Thrice 4. Four times and above --------

(b) In the light of (a) above, how many times did you change/find the job in Delhi.
1. Once 2. Twice 3. Thrice and above --------

B. HOUSEHOLD INFORMATION

1. Present Residential Address ----------

2. If migrant, place of last residence: ----------
2.1 Place (R/U)
2.2 District
2.3 State
2.4 Year of migration

C. HOUSEHOLD STRUCTURE

1. Members of Employee's Family: ----------
1 2 3 4 5 6 7 8 9

2. Relationship with Employee: Self

3. Sex: ----------

4. Age: ----------

2. Living Space (Number of rooms):
(1, 2, 3, 4, 5, 6, etc.) ----------

E. FACILITIES AVAILABLE

1. At household level (please answer the questions in yes (1) or No (2) Codes:

1.1. Kitchen ----------
1.2. W.C./Bath ----------
1.3. Piped water ----------
1.4. Electricity ----------
1.5. Sewerage ----------

2. At neighbourhood level (Actual Distance in Metres)

2.1. Public hydrant/well ----------

2.2. Community latrine ----------

2.3. Park and Playground ----------

2.4. Community Centre/Reading Room/Library ----------

2.5. Educational Centres:
2.5.1. Nursury ----------
2.5.2. Primary ----------
2.5.3. Secondary ----------

2.6. Health (Dispensary, PHC etc.) ----------

2.7. Post Office ----------

2.8. Bank ----------

2.9. Bus Stand ----------

F. (a) DISTANCE FROM RESIDENCE TO PLACE OF WORK (in kms.) ----------

(b) MODE OF TRANSPORT USED:

1. On Foot (if the distance covered is more than half km) (1)

2. Public Bus Service (DTC/Other Public Roadways) (2)

3. Private:
3.1. Bus Service (3)

5. Marital Status: ----------

6. Educational Level: ----------

7. Worker/Non-worker ----------

8. If worker, employed in
   8.1 Govt./Public Undertaking ----------
   8.2 Private Sector ----------

9. Occupation ----------

10. Monthly income in Rs.
   10.1 Gross ----------
   10.2 Net ----------

Note:

1. Sex: Male (1), Female (2).

2. Age: 0-3, 4-9, 10-14, 15-19, 20-24, 25-29, 30-39, 40-49, 50-59, 60+
   (1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

3. Marital status: Married (1), Unmarried (2), Divorced (3) Widower (4)

4. Educational Level: Illiterate (1), Prop/literate without education (2), Primary (3), Secondary (4), Matric/Intermediate (5), Graduate (6), Post-graduate (7), Technical Degree/Diploma (8).

5. Worker/Non worker = Unemployed (1), Student (2) Partially employed (3) Full-time Employed (4).

6. Occupation Code: Cultivation (1), Agricultural labour (2), Live-stock, Forestry, fishing, hunting and plantations,orchards and allied activities (3), Minining and Quarrying (4), Manf. processing servicing and repairs (5), Household industries (5a), Manufacturing other than household industries (5b), Construction (6) Trade and Commerce (7), Transport, Storage & Communication (8) Other Services(9)

D. TENURESHIP OF PRESENT ACCOMMODATION

1. Tenureship of present accommodation: ----------
   1.1 Own house (1)
   1.2 Rented house

   If rented, 1.2.1. Private (2)
   1.2.2. Govt. house (3)
   1.2.3. Govt. hostel (4)
   1.3. Sharing (5) ----------

2. Living Space (Number of rooms):
(1, 2, 3, 4, 5, 6, etc.) ----------

E. FACILITIES AVAILABLE

1. At household level (please answer the questions in yes (1) or No (2) Codes:

1.1. Kitchen ----------
1.2. W.C./Bath ----------
1.3. Piped water ----------
1.4. Electricity ----------
1.5. Sewerage ----------

2. At neighbourhood level (Actual Distance in Metres)

2.1. Public hydrant/well ----------

2.2. Community latrine ----------

2.3. Park and Playground ----------

2.4. Community Centre/Reading Room/Library ----------

2.5. Educational Centres:
2.5.1. Nursury ----------
2.5.2. Primary ----------
2.5.3. Secondary ----------

2.6. Health (Dispensary, PHC etc.) ----------

2.7. Post Office ----------

2.8. Bank ----------

2.9. Bus Stand ----------

F. (a) DISTANCE FROM RESIDENCE TO PLACE OF WORK (in kms.) ----------

(b) MODE OF TRANSPORT USED:

1. On Foot (if the distance covered (1) is more than half km)

2. Public Bus Service (2)
(DTC/Other Public Roadways)

3. Private:
3.1. Bus Service (3)

3.2. Taxi/Scooter (3-wheeler) (4)

3.3. Cycle Rickshaw (5)

4. Train (6)

5. Own transport:
   5.1. Car/Scooter/Motor-cycle (7)
   5.2. Cycle (8)

6. Office Conveyance (9)

G. MONTHLY EXPENDITURE — Amount per month (Rs.)

1. Rent (on accommodation): ----------

2. Education: ----------

3. Electricity/power/fuel: ----------

4. Water Supply: ----------

5. Transport:

   5.1. on self (office commutation) ----------
   5.2. on children (school going/collge going) ----------

6. Medical Expenditure (other than CGHS) ----------

7. Telephone bills: ----------

8. Clothing (Average of the year) ----------

9. Kitchen items (including milk, vegetables, cereals, pulses, fruits, oil etc. ----------

10. Servant (if any): ----------

11. Recreations and entertainment (pictures theatres etc.) ----------

12. Others (i.e. social obligations etc.) ----------
    Total: ----------

H. SAVINGS: i) other than deductions made at sources ----------
   ii) through deductions made at source ----------

Signature of the Field Officer

Date:

A P P E N D I C E S

APPENDIX - 1

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUPS IN DELHI, AS OF 1980-81

(PERCENT)

Income (in Rs.)	Rent	Education	Electricity	Water Supply	Transport			Medical
					Self	children	Others	
Less than 500	14.36	3.40	2.00	0.53	2.63	0.66	2.80	0.67
500-1000	11.01	2.41	1.75	0.28	2.18	0.27	1.40	0.99
1000-1250	5.59	3.56	2.66	0.32	2.43	0.44	3.79	1.64
1250-1500	7.55	5.67	2.72	0.79	2.54	0.70	3.59	1.56
1500-1750	9.06	4.42	2.62	0.53	2.24	1.06	3.95	2.10
1750-2000	9.01	3.83	2.35	0.65	2.14	0.66	3.89	1.11
2000-2500	8.71	3.07	2.27	0.57	1.99	0.62	3.96	0.91
2500-3000	6.11	2.38	2.58	0.58	1.94	0.54	5.24	2.05
More than 3000	5.38	2.78	2.11	0.41	1.98	0.51	3.47	1.27
Total	7.81	3.26	2.28	0.49	2.13	0.57	3.52	1.36

APPENDIX -1. (Contd.)

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUP IN DELHI, AS OF 1980-81

(PERCENT)

Income (in Rs.)	Telephone	Cloth	Kitchen	Servant	Entertainment	Others	Total
Less than 500	0.22	12.52	55.84	-	3.07	0.87	107.57
500-1000	-	9.13	48.44	0.05	3.37	13.45	94.74
1000-1250	0.06	9.10	48.09	0.72	2.96	7.89	89.25
1250-1500	-	8.94	44.60	0.91	2.02	9.59	91.18
1500-1750	-	7.84	44.17	0.96	3.26	6.96	89.18
1750-2000	0.02	7.82	43.47	0.95	2.64	3.75	86.29
2000-2500	0.16	10.52	39.11	0.92	3.18	8.25	84.24
2500-3000	0.13	9.04	39.04	1.50	2.69	7.01	80.83
More than 3000	1.05	7.85	33.74	1.19	3.32	4.21	69.28
Total	0.33	8.78	41.29	0.90	3.20	7.50	83.42

APPENDIX - 2.

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUP IN GHAZIABAD, AS OF 1980-81

(PERCENT)

Income (in Rs.)	Rent	Education	Electricity	Water Supply	Transport			Medical
					Self	Children	Others	
Less Than 500	5.63	1.58	3.38	0.23	3.83	-	-	2.70
500-1000	12.50	6.36	2.79	0.80	-	1.00	1.90	-
1000-1250	6.20	8.26	2.69	0.37	1.03	-	2.07	0.83
1250-1500	9.22	4.61	2.48	0.18	0.35	0.71	4.96	0.89
1500-1750	9.10	7.52	1.35	0.45	1.88	0.45	0.98	1.50
1750-2000	10.21	4.71	2.88	0.39	1.57	2.62	2.88	-
2000-2500	-	-	-	-	-	-	-	-
2500-3000	5.00	1.33	2.67	0.67	2.33	-	5.33	11.67
Total	8.82	5.39	2.42	0.47	1.48	0.77	2.40	2.18

APPENDIX - 2. (Contd.)

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUP IN GHAZIABAD, AS OF 1980-81.

(PERCENT)

Income (in Rs.)	Telephone	Cloth	Kitchen	Servant	Entertainment	Others	Total
Less than 500	-	14.41	74.32	-	6.98	26.35	139.41
500-1000	-	7.81	54.69	-	3.35	12.83	104.04
1000-1250	-	7.44	51.65	1.24	1.65	6.20	89.63
1250-1500	-	10.64	50.28	-	1.77	4.61	100.71
1500-1750	-	10.53	45.11	0.75	2.71	15.04	97.37
1750-2000	-	10.47	47.59	0.79	3.93	19.16	107.20
2000-2500	-	-	-	-	-	-	-
2500-3000	-	6.67	60.00	1.33	-	6.67	103.67
Total	-	9.64	55.29	0.59	2.85	11.77	104.07

APPENDIX - 3.

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUPS IN FARIDABAD-BALLABHGARH, AS OF 1980-81

(PERCENT)

Income (in Rs.)	Rent	Education	Electricity	Water Supply	Self	Children	Others	Medical
Less than 500	12.82	-	0.75	0.38	0.75	-	7.54	1.51
500-1000	7.44	2.50	2.96	0.58	3.88	-	2.30	2.89
1000-1250	5.45	6.51	3.93	0.61	2.42	4.99	7.22	3.48
1250-1500	14.44	1.44	4.15	0.51	3.61	-	2.89	1.44
1500-1750	-	2.99	3.28	0.60	1.49	1.49	1.19	0.60
1750-2000	8.71	-	3.31	1.05	9.15	-	4.36	1.74
2000-2500	11.30	1.81	2.20	0.47	2.26	2.37	5.65	3.22
2500-3000	-	1.75	1.40	0.57	1.40	-	2.45	3.49
More than 3000	8.67	0.87	2.77	0.61	1.08	-	6.50	2.47
Total	7.19	1.80	2.67	0.61	2.84	0.00	4.45	2.61

APPENDIX - 3. (Contd.)

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUPS IN FARIDABAD-BALLABHGARH, AS OF 1980-81.

(PERCENT)

Income (in Rs.)	Telephone	Cloth	Kitchen	Servant	Entertainments	Others	Total
Less than 500	-	12.82	43.74	-	3.39	16.21	99.92
500-1000	-	11.18	40.37	0.79	4.41	5.85	85.15
1000-1250	-	13.01	59.00	-	1.51	5.30	113.92
1250-1500	-	7.22	44.22	-	4.33	6.50	90.76
1500-1750	7.46	49.25	30.75	2.99	4.18	1.49	107.76
1750-2000	5.23	25.26	26.13	0.87	3.48	5.23	94.51
2000-2500	-	6.21	25.14	1.13	2.60	3.11	67.48
2500-3000	-	8.15	51.25	-	2.15	6.70	79.30
More than 3000	-	9.54	37.27	1.04	4.33	1.99	77.15
Total	1.04	13.38	38.22	0.81	3.40	4.61	84.41

APPENDIX - 4.

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUPS IN GURGAON, AS OF 1980-81

(PERCENT)

Income (in Rs.)	Rent	Education	Electricity	Water Supply	Transport			Medical
					Self	Children	Other	
Less than 500	-	-	-	-	-	-	-	-
5000-1000	3.07	2.31	2.50	0.38	7.68	-	-	2.31
1000-1250	-	-	-	-	-	-	-	-
1250-1500	-	-	-	-	-	-	-	-
1500-1750	-	8.82	2.94	0.59	2.94	2.94	-	-
1750-2000	22.22	5.56	3.89	0.56	2.78	3.33	2.78	-
2000-2500	21.74	4.35	2.17	0.43	6.52	2.17	2.17	-
2500-3000	-	-	-	-	-	-	-	-
More than 3000	-	4.05	1.62	0.27	-	-	-	-
Total	8.10	4.63	2.44	0.41	3.72	1.32	0.83	0.50

APPENDIX - 4. (Contd.)

DISTRIBUTION OF EXPENDITURE AMONG DIFFERENT INCOME GROUPS IN GURGAON, AS OF 1980-81.

(PERCENT)

Income(in Rs.)	Telephone	Cloth	Kitchen	Servant	Entertainment	Others	Total
Less than 500	-	-	-	-	-	-	-
500-1000	-	11.53	38.42	2.11	3.27	5.76	79.33
1000-1250	-	-	-	-	-	-	-
1250-1500	-	-	-	-	-	-	-
1500-1750	-	17.65	52.74	2.35	2.94	5.88	100.00
1750-2000	-	8.33	44.44	2.78	4.17	-	100.00
2000-2500	-	6.52	26.09	-	-	8.70	80.87
2500-3000	-	-	-	-	-	-	-
More than 3000	-	9.46	40.54	0.95	2.70	6.76	66.35
Total	-	10.33	39.66	1.49	2.56	5.78	81.76

APPENDIX - 5.

DISTRIBUTION OF SAVINC RANGE THROUGH DEDUCTION MADE AT THE SOURCE IN DIFFERENT INCOME GROUPS IN DELHI AS OF 1980-81

(PERCENT)

Income Range (Rs.)	Range of Savings in Rupees						
	No Savings	Upto 100	101-200	201-300	301-400	401-500	501 +
Upto 500	10.00	83.33	6.67	-	-	-	-
501-1000	2.53	72.15	22.78	2.54	-	-	-
1001-1250	-	54.55	36.36	6.82	-	2.27	-
1251-1500	-	53.85	30.76	11.54	3.85	-	-
1501-1750	-	41.94	22.58	14.35	12.90	3.23	-
1751-2000	-	39.39	24.24	12.12	9.09	0.09	6.07
2001-2500	-	15.69	9.80	23.53	17.65	9.80	23.53
2501-3000	-	16.67	13.89	19.44	11.11	8.33	30.56
3001+	-	6.17	1.24	4.94	8.64	13.58	65.43
Total	1.43	45.31	17.96	8.78	5.71	4.90	15.91

APPENDIX - 6.

DISTRIBUTION OF SAVING RANGE THROUGH DEDUCTION MADE AT THE SOURCE IN DIFFERENT INCOME GROUPS IN GHAZIABAD, AS OF 1980-81.

(PERCENT)

Income Range (Rs.)	Range of Savings in Rupees						
	No Savings	Upto 100	101-200	201-300	301-400	401-500	500 +
Upto 500	-	100.00	-	-	-	-	-
501-1000	-	66.67	22.22	-	-	-	-
1001-1250	-	-	-	-	-	-	-
1251-1500	-	-	100.00	-	-	-	-
1501-1750	-	-	50.00	50.00	-	-	-
1751-2000	-	-	50.00	25.00	-	-	25.00
2001-2500	-	-	-	33.33	-	66.67	-
2501-3000	-	-	-	-	-	-	-
3001+	-	-	-	-	-	-	100.00
Total	-	39.12	26.09	13.04	4.35	8.70	8.70

APPENDIX - 7.

DISTRIBUTION OF SAVINGS RANGE THROUGH DEDUCTION MADE AT THE SOURCE IN DIFFERENT INCOME GROUPS IN FARIDABAD-BALLABHGARH, AS OF 1980-81.

(PERCENT)

Income Range (Rs.)	Range of Savings in Rupees						
	No Savings	Upto 100	101-200	201-300	301-400	401-500	501+
Upto 500	-	-	-	-	-	-	-
501-1000	-	84.62	15.38	-	-	-	-
1001-1250	-	100.00	-	-	-	-	-
1251-1500	-	50.00	-	50.00	-	-	-
1501-1750	-	-	100.00	-	-	-	-
1751-2000	-	50.00	-	-	25.00	-	25.00
2001-2500	-	40.00	20.00	40.00	-	-	-
2501-3000	-	50.00	50.00	-	-	-	-
3001+	-	-	60.00	-	20.00	-	20.00
Total	-	54.55	24.24	9.09	6.06	-	6.06

APPENDIX - 8.

DISTRIBUTION OF SAVINGS RANGE THROUGH DEDUCTION MADE AT SOURCE IN DIFFERENT INCOME GROUPS IN GURGAON, AS OF 1980-81.

(PERCENT)

Income Range (Rs.)	Range of Savings in Rupees		
	No Saving	Upto 100	101 to 200
Upto 500	-	-	-
501-1000	-	100.00	-
1001-1250	-	100.00	-
1251-1500	-	-	-
1501-1750	-	-	-
1751-2000	-	-	100.00
2001-2500	-	-	100.00
2501-3000	-	-	-
3001+	-	-	100.00
Total	-	42.86	57.14

APPENDIX - 9.

DISTRIBUTION OF HOUSEHOLD SAVINGS IN DELHI, AS OF 1980-81

(PERCENT)

Income Range(Rs.)	Range of Saving in Rupees						
	No Savings	Upto-100	101-200	201-300	301-400	401-500	501 and above
Upto 500	70.00	30.00	-	-	-	-	-
501-1000	66.46	24.68	7.59	.63	-	-	.63
1001-1250	34.09	40.91	11.36	6.82	4.55	-	2.27
1251-1500	42.31	30.70	15.38	3.85	7.69	-	-
1501-1750	32.26	22.58	10.13	6.45	6.45	6.45	9.68
1751-2000	21.21	27.27	21.21	6.06	15.16	-	9.09
2001-2500	27.45	19.62	7.84	21.57	7.84	9.80	5.88
2501-3000	8.33	13.89	22.22	22.22	5.56	11.11	16.67
3001 and above	14.81	8.64	11.11	7.41	8.64	13.58	30.80
Total	40.40	22.86	11.02	6.94	4.90	4.49	9.39

APPENDIX - 10.

DISTRIBUTION OF HOUSEHOLD SAVINGS IN GHAZIABAD, AS OF 1980-81.

(PERCENT)

S.N.	Income Range (Rs.)	Range of Saving in Rupees		
		No Saving	Upto 100	101-200
1.	Upto 500	100.00	-	-
2.	501-1000	77.78	22.22	-
3.	1001-1250	-	-	-
4.	1251-1500	-	-	100.00
5.	1501-1750	100.00	-	-
6.	1751-2000	50.00	50.00	-
7.	2001-2500	66.67	-	33.33
8.	2501-3000	-	-	-
9.	3001 and above	100.00	-	-
10.	Total	73.91	17.39	8.70

APPENDIX - 11.

DISTRIBUTION OF HOUSEHOLD SAVINGS IN FARIDABAD-BALLABHGARH, AS OF 1980-81.

(PERCENT)

Income Range(Rs.)	Range of Saving in Rupees						
	No Saving	Upto-100	101-200	201-300	301-400	401-500	500 and above
Upto 500	-	-	-	-	-	-	-
501-1000	7.69	69.24	7.69	15.38	-	-	-
1001-1250	-	100.00	-	-	-	-	-
1251-1500	-	-	100.00	-	-	-	-
1501-1750	-	-	100.00	-	-	-	-
1751-2000	25.00	25.00	-	-	-	50.00	-
2001-2500	20.00	-	20.00	-	20.00	20.00	20.00
2501-3000	-	-	-	-	-	-	100.00
3001 and above	-	-	-	20.00	-	20.00	60.00
Total	9.09	33.33	15.15	9.09	3.03	12.12	13.19

APPENDIX - 12.

DISTRIBUTION OF HOUSEHOLD SAVINGS IN GURGAON, AS OF 1980-81.

(PERCENT)

Income Range (Rs.)	Range of Saving in Rupees						
	No Saving	Upto-100	101-200	201-300	301-400	401-500	501 & above
Upto 500	-	-	-	-	-	-	-
501-1000	50.00	-	50.00	-	-	-	-
1001-1250	-	-	100.00	-	-	-	-
1251-1500	-	-	-	-	-	-	-
1501-1750	-	-	-	-	-	-	-
1751-2000	100.00	-	-	-	-	-	-
2001-2500	-	-	-	-	-	100.00	-
2501-3000	-	-	-	-	-	-	-
3001 and above	-	-	-	-	-	-	100.00
Total	42.86	-	28.57	-	-	14.29	14.28

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